New tricks with industrial TV

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BUSINESS WEEK

A McGRAW-HILL PUBLICATION FIFTY CENTS SEPT. 14, 1957



At North American's Atomics International—Chauncey Starr is getting a defense company into civilian atomic business.

E B POWER
UNIVERSITY MICROFILMS
315 N 1ST ST
ANN ARBOR MICH



National's De luxe adding machine . . .

*Live Keyboard** with keytouch adjustable to each operator!

Saves up to 50% hand motion—and effort! Never before have so many time-and-effort saving features been placed on an adding machine.

Every key operates the motor—so you can't forget the motor bar. No more back-and-forth hand motion from keys to motor bar.

Keys are instantly adjustable to each operator's touch! No wonder operators are so enthusiastic about it. They do their work faster with up to 50% less effort. New operating advantages, quietness, beauty!

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989 OFFICES IN 94 COUNTRIES

A National "De luxe" Adding Machine pays for itself with the time-and-effort it saves, continues savings as yearly profit. One hour a day saved with this National will, in the average office, repay 100% a year on the investment. See a demonstration on your own work. Call nearest National branch office or dealer. See phone book yellow pages.

National

ADDING MACHINES · CASH REGISTERS
ACCOUNTING MACHINES
NCR PAPER (NO CARBON REQUIRED)

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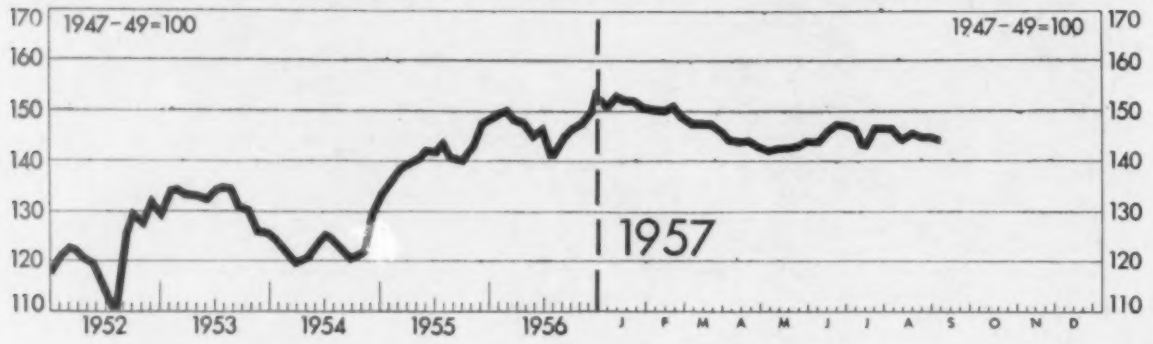
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BUSINESS WEEK is published weekly by McGraw-Hill Publishing Co., Inc., at 99 N. Broadway, Albany 1, N. Y. Entered as second class matter Dec. 4, 1936 at the Post Office at Albany, N. Y. under act of Mar. 3, 1879. Subscriptions $6 a year in U. S. A.

NUMBER 1463

FIGURES OF THE WEEK



	1946 Average	Year Ago	Month Ago	Week Ago	§ Latest Week
BUSINESS WEEK INDEX (chart)	**91.6**	**146.6**	**144.9**	**†145.3**	***144.9**
PRODUCTION					
Steel ingot (thous. of tons)	1,281	2,477	2,062	†2,073	**2,126**
Automobiles and trucks	62,880	66,618	137,143	†142,982	**110,354**
Engineering const. awards (Eng. News-Rec. 4-wk daily av. in thous.)	$17,083	$67,585	$62,702	$61,751	**$55,235**
Electric power (millions of kilowatt-hours)	4,238	10,955	12,070	12,147	**11,678**
Crude oil and condensate (daily av., thous. of bbls.)	4,751	7,037	6,797	6,766	**6,807**
Bituminous coal (daily av., thous. of tons)	1,745	1,644	1,625	†1,658	**1,665**
Paperboard (tons)	167,269	202,337	279,462	290,919	**214,792**
TRADE					
Carloadings: miscellaneous and l.c.l. (daily av., thous. of cars)	82	75	66	70	**69**
Carloadings: all others (daily av., thous. of cars)	53	56	58	56	**55**
Department store sales index (1947-49 = 100, not seasonally adjusted)	90	128	104	121	**135**
Business failures (Dun & Bradstreet, number)	22	196	265	262	**208**
PRICES					
Spot commodities, daily index (Moody's, Dec. 31, 1931 = 100)	311.9	425.7	428.0	417.4	**415.8**
Industrial raw materials, daily index (BLS, 1947-49 = 100)	††73.2	97.7	92.7	91.0	**90.1**
Foodstuffs, daily index (BLS, 1947-49 = 100)	††75.4	82.5	85.9	84.4	**85.3**
Print cloth (spot and nearby, yd.)	17.5¢	18.6¢	17.9¢	17.9¢	**17.8¢**
Finished steel, index (BLS, 1947-49 = 100)	††76.4	168.6	181.5	181.5	**181.5**
Scrap steel composite (Iron Age, ton)	$20.27	$58.83	$53.50	$50.17	**$48.50**
Copper (electrolytic, delivered price, E & MJ, lb.)	14.045¢	39.890¢	28.480¢	27.625¢	**26.855¢**
Wheat (No. 2, hard and dark hard winter, Kansas City, bu.)	$1.97	$2.28	$2.09	$2.11	**$2.12**
Cotton, daily price (middling, 1 in., 14 designated markets, lb.)	**30.56¢	33.02¢	33.69¢	33.39¢	**33.26¢**
Wool tops (Boston, lb.)	$1.51	$1.86	$2.22	#	**$2.12**
FINANCE					
500 stocks composite, price index (S&P's, 1941-43=10)	17.08	47.58	46.44	45.04	**44.38**
Medium grade corporate bond yield (Baa issues, Moody's)	3.05%	4.03%	4.81%	4.89%	**4.91%**
Prime commercial paper, 4 to 6 months, N. Y. City (prevailing rate)	¾-1%	3½%	4%	4%	**4%**
BANKING (Millions of Dollars)					
Demand deposits adjusted, reporting member banks	††45,820	54,920	55,096	†54,973	**54,434**
Total loans and investments, reporting member banks	††71,916	85,684	85,955	†86,470	**86,300**
Commercial and agricultural loans, reporting member banks	††9,299	29,355	31,742	†32,012	**32,065**
U. S. gov't guaranteed obligations held, reporting member banks	††49,879	26,501	24,821	†24,914	**24,788**
Total federal reserve credit outstanding	23,888	25,454	25,124	25,133	**25,228**

MONTHLY FIGURES OF THE WEEK

		1946 Average	Year Ago	Month Ago	Latest Month
Housing starts (in thousands)	**August**	55.9	103.9	96.0	**95.0**
Employment (in millions)	**August**	55.2	66.4	67.2	**66.4**
Unemployment (in millions)	**August**	2.3	2.5	3.0	**2.6**
Average weekly earnings in manufacturing	**August**	$43.82	$79.79	$82.18	**$82.59**
Wholesale prices (U. S. Dept. of Labor BLS, 1947-49 = 100)	**August**	78.7	114.7	118.2	**118.3**
Exports (in millions)	**July**	$812	$1,639	$1,786	**$1,691**
Wholesalers' inventories (seasonally adjusted, in billions)	**July**	$5.5	$12.3	$12.7	**$12.7**
Retailers' inventories (seasonally adjusted, in billions)	**July**	$9.8	$23.8	$24.1	**$24.1**

* *Preliminary, week ended September 7, 1957.*
† *Revised.*
†† *Estimate.*
** *Ten designated markets, middling ⅞ in.*
§ *Date for 'Latest Week' on each series on request.*
\# *Insufficient trading to establish a price.*

THE PICTURES—Armco Steel Corp.—124; Burson-Marsteller—76; Cayton-Klemperer—134; Convair—117; Walter Curtin—30, 31; Eric Hess—82, 83, 86; Bob Hotz—94 (bot. lt.); I.N.P.—28 (rt.); Kaiser Aluminum & Chemical Corp.—189 (bot. lt. & rt.), 190 (rt.); Ketchum, Gina' & Sharp—65; Herb Kratovil—46, 54, 56, 81; Robert Lackenbach—190 (lt.); W. J. Lederer—152, 153, 154, 156, 158, 160, 162; McGraw-Hill World News—84; Leonard Nadel—cover, 140, 141; Robert Phillips—29; Ernest Reshovsky—25; Schaefer & Seawell—189 (top); Sharon Steel Co.—198; George Tames—28 (lt.); U.P.—94 (top lt. & rt.), 95, 98; United Rubber Workers—175; W.W.—96, 100; Dick Wolters—26, 27.

B.F.Goodrich report:



Rubber throats feed a fire spitter

B. F. Goodrich improvements in rubber brought extra savings

Problem: Jet planes build up terrific heat as they streak through the sky at supersonic speeds. Heat that would burn right through *ordinary* rubber. Yet a flexible hose was needed to handle the highly corrosive fuel that powers the plane. Corrosion and heat!

What was done: B.F.Goodrich engineers and a manufacturer of hose assemblies teamed up to solve this problem. By adding, subtracting, changing proportions of rubber, they developed a special heat-resisting compound for the hose. This they covered with braids of stainless steel wire, then added a new kind of leakproof coupling.

Benefits: The result is a hose line that's tough enough to stand high heat and corrosive fuel, strong enough to take pressure and vibration without weakening, yet so light and flexible that it fits easily into the most compact jet engines.

Today this improved hose is fulfilling its purpose perfectly in the newest, most modern jet planes, such as Lockheed's F-104A, shown above, the world's fastest combat plane.

B.F.Goodrich developed this hose with and for Aeroquip Corporation, a manufacturer of hose assemblies, fittings and couplings.

For information on other types of B.F.Goodrich hose, see your B.F.Goodrich distributor. As a factory-trained specialist in rubber products, he *can* answer your questions about *all* the rubber products B.F.Goodrich makes for industry. *B.F.Goodrich Industrial Products Company, Dept. M-144, Akron 18, Ohio.*

B.F.Goodrich

INDUSTRIAL PRODUCTS



commuter scooter?



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BUSINESS WEEK • SEPTEMBER 14, 1957 • NUMBER 1463

(with which are combined The Annalist and the Magazine of Business) Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **PUBLICATION OFFICE:** 99-129 North Broadway, Albany 1, N. Y. See panel below for directions regarding subscriptions or change of address. **EXECUTIVE, EDITORIAL, CIRCULATION** and **ADVERTISING OFFICES:** McGraw-Hill Building, 330 West 42nd Street, N. Y. 36, N. Y. Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary; Nelson Bond, Executive Vice President, Publications Division; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator. Subscriptions to Business Week are solicited only from management men in business and industry. **POSITION AND COMPANY CONNECTION MUST BE INDICATED ON SUBSCRIPTION ORDERS. SEND TO ADDRESS SHOWN IN BOX BELOW.** United States subscription rates for individuals in the field of the publication, $6 per year; Canada, $7; other Western Hemisphere countries and the Philippines, $20; all other countries, $25. Single copies, 50¢. Second class mail privileges authorized at Albany, N. Y. Printed in U. S. A. Title registered in U. S. Patent Office.

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READERS REPORT

Sales Up, Not Down

Dear Sir:

We noted with considerable regret in Cutbacks Bring On the Jitters [BW—Aug.24'57,p29] the erroneous statement that American Bosch Arma Corp. had suffered a dip in sales in the past quarter.

Net sales for the first half of 1957 were $69,094,295 as compared with $55,495,863 in 1956 and net sales for the first quarter of this year were $31,380,571 and they were increased to $37,713,724 in the second quarter. So you see the trend has been up, no matter what way you look at it. . . .

LESLIE E. NEVILLE
DIRECTOR OF ADVERTISING
AMERICAN BOSCH ARMA CORP.
HEMPSTEAD, N. Y.

Short Line Railroads

Dear Sir:

Your special report The Railroads [BW—Jul.13'57,p84] was a real contribution to discussion of railroads as an industry and should receive nationwide attention.

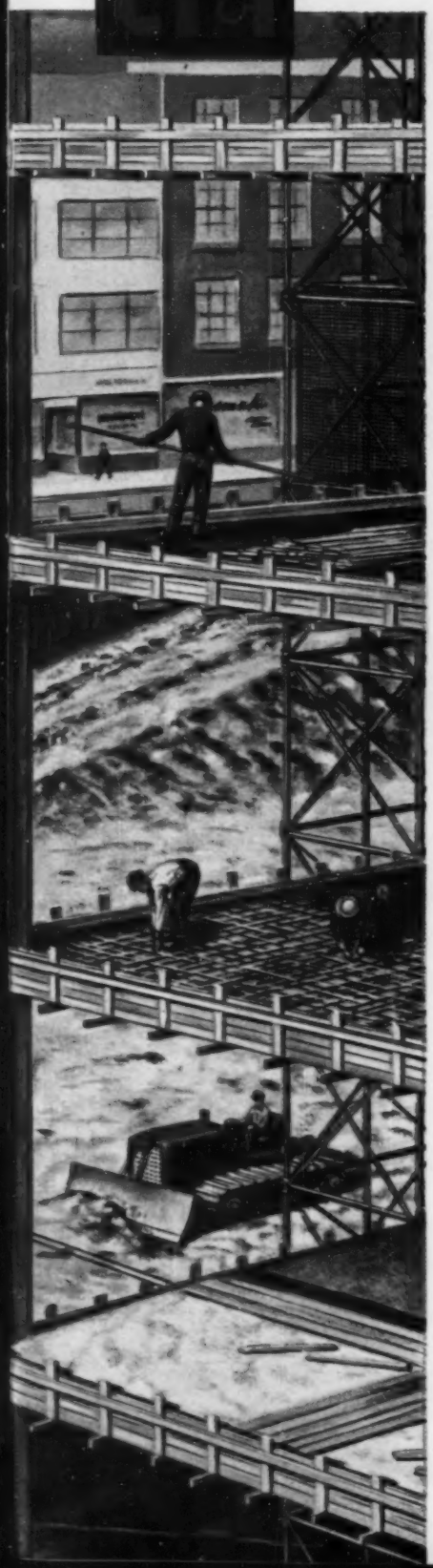
Study of the article leaves us disappointed that the authors did not have space to consider the significance of hundreds of short line railroads and branch lines in the nationwide picture. . . .

There are approximately 600 short line railroads in the U. S. most of which are common carriers. Two hundred and eighty four of the smaller railroads make up the American Short Line Railroad Assn. During 1955, in the aggregate, member lines operated more than 17,000 miles of first main track and employed 64,000 persons. They had invested in their properties at the end of 1955 in excess of $1.5-billion. During that year they paid taxes approximating $78-million. We have no accurate information concerning hundreds of others.

In addition to the transportation of purely local traffic, the short lines have a major role in originating and delivering traffic to and terminating traffic for the large railroad systems. While no recent statistics are available, a few years ago . . . it was disclosed that about 55% of the eastbound transcontinental tonnage and about 20% of the westbound transcontinental tonnage originated and terminated on branch lines or short

From start to finish...



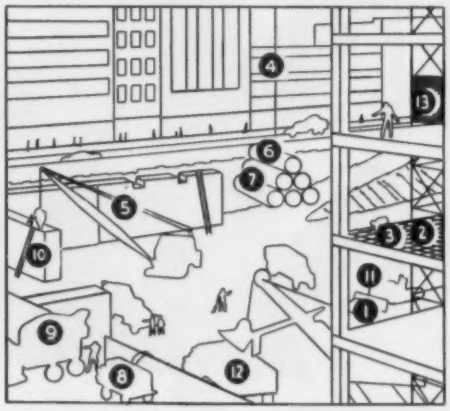


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6. **Wickwire Wire Rope Slings**
7. **Clinton Welded Wire Fabric**
8. **Claymont Heads and Fittings for Air Compressors**
9. **Wickwire Valve and Clutch Springs**
10. **CF&I Nails and Staples**
11. **Wissco Perforated Metals**
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13. **CF&I Hardware Cloth**

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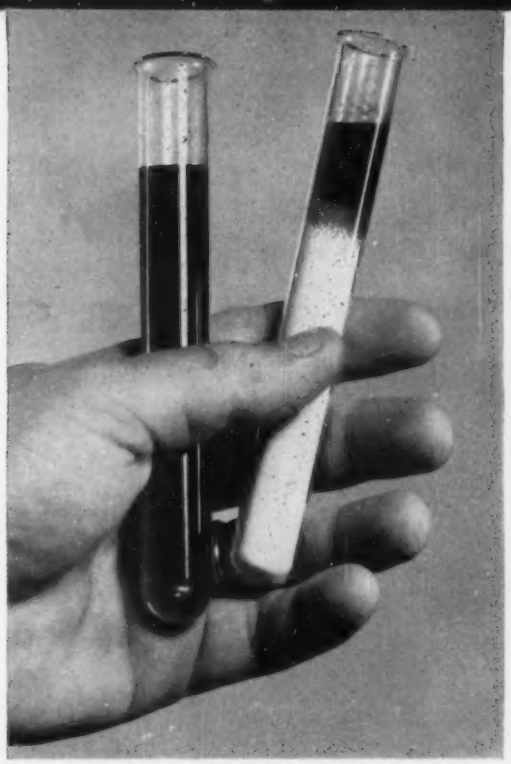
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the future is our frontier

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Here soluble powder contains no Guartec. Colored water quickly seeps through. Tubes have been standing 4 hours.

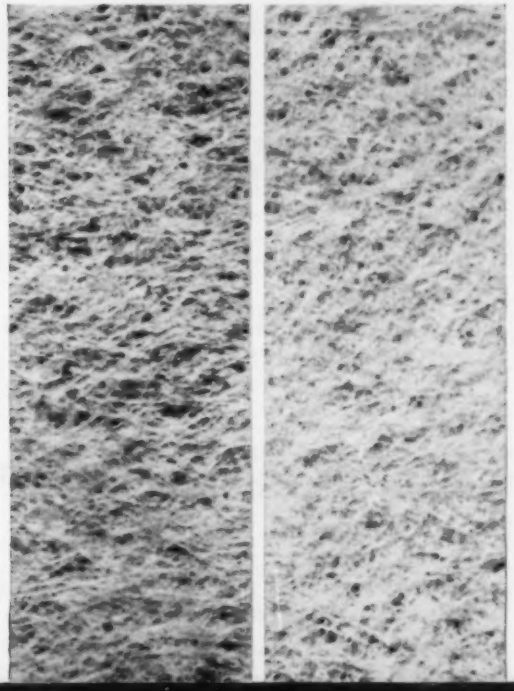
The powder in this tube contains a trace of Guartec which forms a barrier when wet to stop moisture penetration.

amazing new **Guartec** keeps dry materials dry— with their own built-in dam

See how a pinch of Guartec, our trade name for granulated guar gum, keeps the soluble powder dry in the water-filled test tube at near left. Guartec granules can be added in minute quantities to many dry materials to prevent unwanted water from seeping in and causing leaching or deterioration. Upon contact with water, Guartec swells and forms a gel which inhibits moisture penetration.

Special Commodities Division

Without Guartec • With Guartec



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The more uniformly distributed paper fibers in the micro-enlarged photo at near left resulted when a trace of Guartec was added to the pulp. Such processing produces stronger, more uniform papers in less time—with tremendous savings.

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continued next page



paints that won't sag or run, printing inks that won't flake, from versatile **Versamid** polyamide resins

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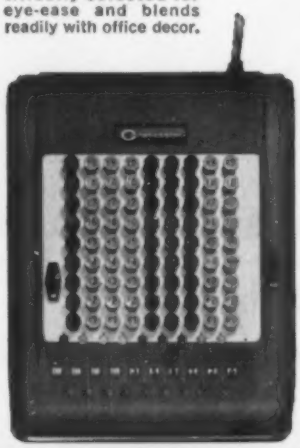
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lines in transcontinental territory. About 47½% of transcontinental traffic originated or was delivered by branch lines and short lines.

Assuming the relationship among railroads remains approximately the same the percentages may be startling to some otherwise well informed people. . . .

O. ARTHUR KIRKMAN
EXECUTIVE VICE-PRESIDENT
HIGH POINT, THOMASVILLE & DENTON RAILROAD CO.
HIGH POINT, N. C.

New Breed

Dear Sir:

Your article Off-Beat Men for Off Beat Jobs [BW—Jul.20'57, p166] was entertaining and informative but lacking in the depth and perception that characterize your reports. . . .

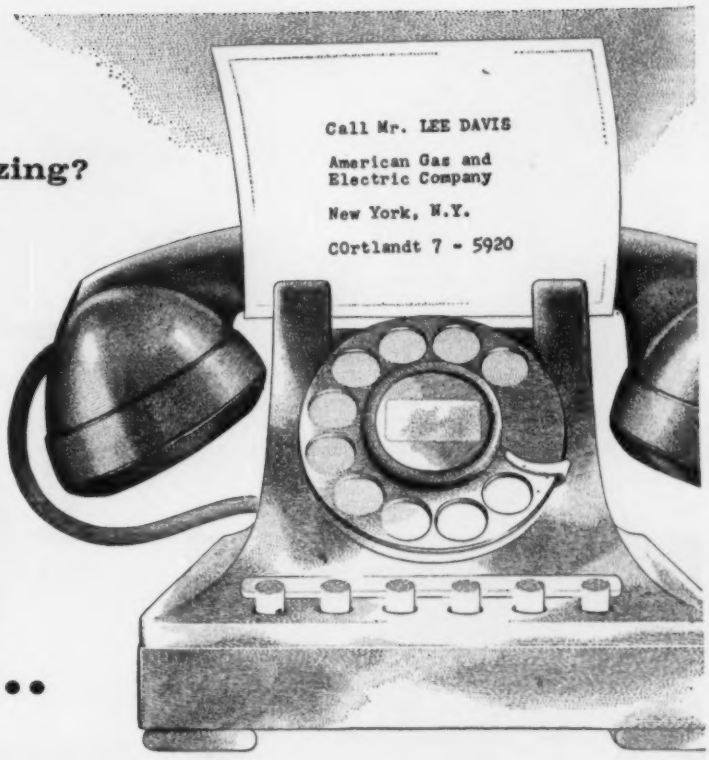
Some of us feel that the nature of the contractor is undergoing a radical change. . . . Yet your article was inclined to delve romantically on patterns more applicable to the past, without indicating an awareness of change, nor the reasons for and direction for such change. Simply stated, the construction projects—as everything else—have grown phenomenally in size and complexity, while the contractual relationships between owner and contractor have broadened the demands made on the latter. . . .

100 years ago the contractor was a master builder: architect, engineer, and builder, all in one. The present species you have described most aptly. The new species, however, as Mr. Turner's quotation stated, will be primarily a management specialist. As a matter of fact it is quite conceivable that in the near future, contractors will be awarded contracts in which they will perform none of the actual work, but simply ride herd on the sub-contractors—some are pretty close to that today. This new breed will not have the opportunity to earn its union cards, and they may not be able to even lay a width of brick plumb, weld without undercutting. . . . But such men will be more accurate in estimating the cost of a project, more persuasive in financing it, more skillful in planning its operations, more learned in its engineering and architectural implications, and perhaps, even wiser in their choice of men to manage it.

You stated that "formal education doesn't get too many kudos." Frankly, it isn't surprising to read that men who come up from the

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if you will just telephone, or write, in confidence to Mr. Lee Davis, Vice President, Area Development Department, American Gas and Electric Company.

YOU COULD make an extended tour of the 48 states in search of that just-right plant site. But without leaving your desk you can call the number above and . . .

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Ask your operator to call New York—COrtlandt 7-5920, for you right now. If you prefer, you may write in confidence to Mr. Lee Davis, Vice President, Area Development, Dept. F-09.





Locate near major markets

This free illustrated brochure tells about the advantages of this 7-state area in the "Heart of Industrial America."

In it you will find everything modern industry needs: skilled labor, low-cost power, abundant resources, complete transportation services, ideal living conditions, next-door suppliers and customers, excellent distribution facilities and favorable tax structures.

For a more detailed description of these and other industry advantages, write Dept. F-09 for free illustrated brochure.

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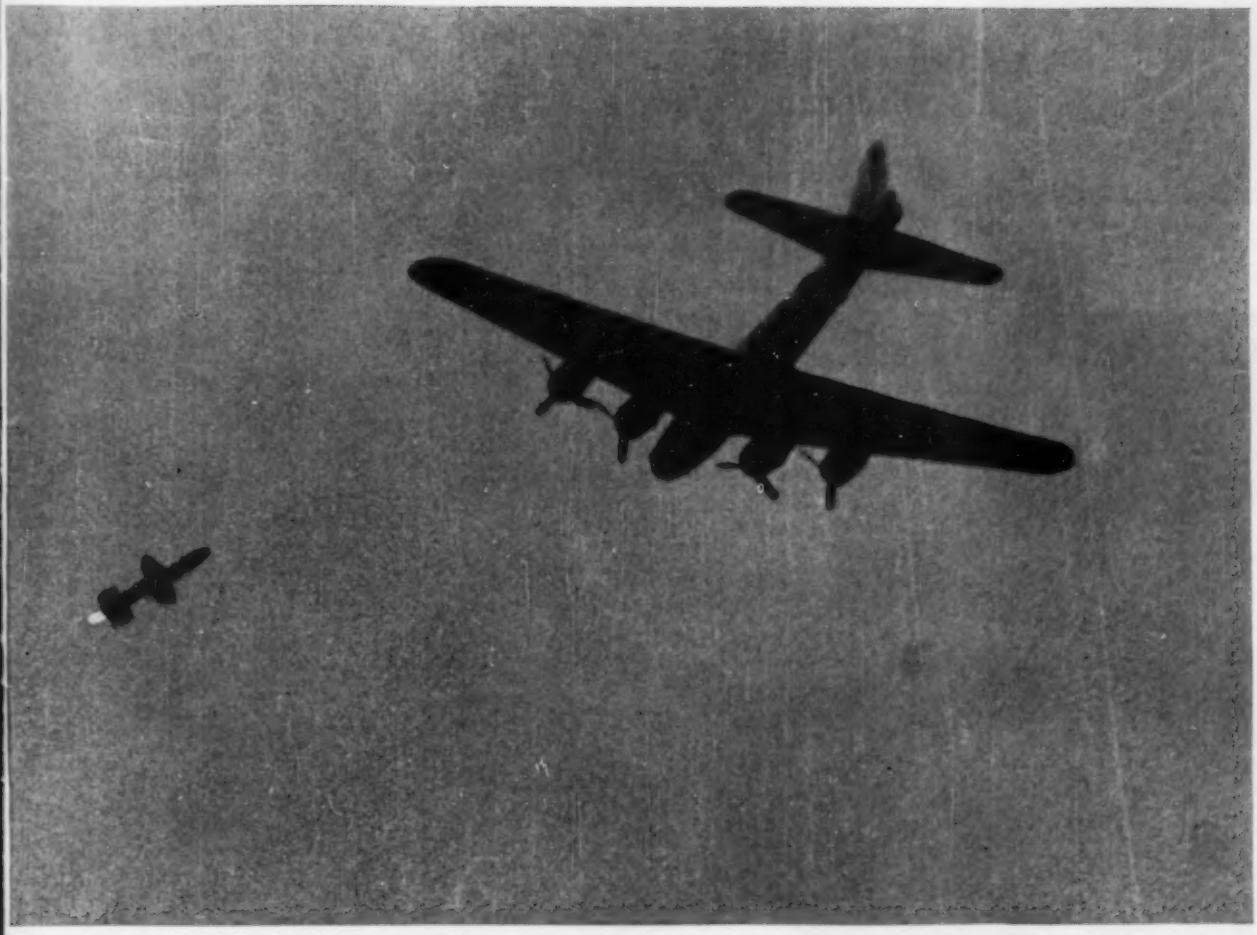
BUILT BY BENDIX



1 TALOS missile poised in launcher at the U. S. Naval Ordnance Missile Test Facility, White Sands Proving Ground, New Mexico.



2 TALOS missile takes off in blaze from launcher. The missile is powered with a ramjet engine which propels it at supersonic speeds.



3 TALOS closes in for "kill" on QB-17 drone. In flight tests this new missile has demonstrated remarkable accuracy and reliability at even its longest range.

THE U. S. NAVY'S LONG-RANGE SURFACE-TO-AIR GUIDED MISSILE

Bendix is the prime contractor for the TALOS guided missile. The Navy announced that it will be added to the arsenal of the United States fleet early next year. Its purpose is to deliver a high explosive or nuclear warhead at any altitude from the lowest to the highest that airplanes now can fly. It also can be used against enemy ships and shore bombardment targets. It is powered by a ramjet engine. Its velocity is several times the speed of sound.

According to a Navy statement, TALOS has consistently demonstrated a remarkably high degree of accuracy in tests, even at its longest range. Due to this reliability the Navy is making the first direct shipboard installation of TALOS in first-line cruisers without the usual intervening steps of evaluation installations in auxiliary experimental ships. TALOS will form the major armament of the cruiser *U. S. S. Galveston*. Three other cruisers—the *Little Rock*, *Oklahoma City*, and the nuclear-powered *Long Beach* also will be armed with TALOS.

The Navy has also stated that the streamlining of the development process due to TALOS' reliability has saved considerable funds and advanced the availability of this missile as a fleet weapon.

Because of its accuracy and great range, the U. S. Army is studying the feasibility of incorporating TALOS into the Continental Air Defense System.

TALOS is sponsored by the Bureau of Ordnance under the technical direction of the Applied Physics Laboratory of Johns Hopkins University. It is produced by Bendix at Mishawaka, Indiana.

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A Mercury Tractor, with winch attachment, spots freight cars quickly and easily.



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ranks are spare in their praise of men who received a college degree, it is human nature. But they do seem to give them jobs. . . . But it has been my experience that the men being hired for middle management are being chosen more and more from the college grad ranks, and it makes sense. . . .

D. A. POLYCHRONE
ASSOCIATE PROFESSOR
SCHOOL OF ARCHITECTURE
GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GA.

Grass Roots Movement

Dear Sir:

As executive secretary of the organization that was chartered by the State of Missouri to organize and lead the movement for coordination of the St. Louis city and county governments, I wish to protest against . . . your recent article headed: St. Louis Gets Experts' Blueprint for Area-Wide City-County Rule [BW—Aug.24'57, p56].

After reviewing the just-completed survey financed by the Ford Foundation, your article states:

"A. J. Cervantes, a city alderman . . . and leaders of the Teamsters union, circulated petitions asking for election of a board of freeholders to go into the question" (city-county co-ordination).

The committee headed by Mr. Cervantes and three other co-chairmen contains representatives of practically every group in the area: both political parties, the four leading religious organizations, women's clubs, community organizations, business and professional and civic groups, schools, all branches of labor including but not limited to the Teamsters union, business houses large and small and other interested individuals numbering 225. . . .

The movement was grass-roots, started by a small group with no financial backing, based on a hitherto-ignored provision of the state constitution. In some two years we gathered 36,116 signatures to petitions calling for coordination, all of them gathered by volunteers.

JAMES E. DARST
THE CITIZENS COMMITTEE FOR CITY-COUNTY CO-ORDINATION, INC.
ST. LOUIS, MO.

• In stressing the roles played by Cervantes and the Teamsters we were singling out those most active in the move to create the board of freeholders. We were not implying that they were alone.

How to stock what you need, as you need it



The boss pounced on Louie when shipping was late
'Cause they ran out of stock just as business got great.



Now the boss is quite tame and Lou ships with success
He specifies shipment by **RAILWAY EXPRESS!**

The big difference is

Which do you think is worse, running *out* of stock or being overstocked? No question about it . . . they're both bad business!

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Talk it over. Figure however you like. You still come up with four convincing reasons for buying *all* your industrial lubricants under a *single* Texaco Sales Agreement:

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INDUSTRIAL LUBRICANTS

BUSINESS OUTLOOK



You can find, without half trying, some very convincing **reasons why business isn't picking up so briskly as we might have wished.**

- **Federal economy.** State and local outlays don't balance these cuts.
- **Business caution.** Investment in new plant and equipment is below earlier schedules, and there is little need for adding to inventories.
- **Trade difficulties.** Currency ills abroad don't help our exports.

—•—

Business outlays for expansion and modernization (page 23) are breaking all records this year as expected. They apparently will top $37-billion, about $2-billion above the old high, set last year.

Having said that, though, you've squeezed about all the good news out of the figures that's to be got from them.

The quarter-by-quarter line has flattened out, lost its oomph. And, worse yet, it is running below earlier projections—which could easily mean that it is heading for a slide next year.

It's hard to tell right now why business isn't expanding so rapidly as was planned earlier in the year. Perhaps it's the money bind; or delays may have been encountered on construction and equipment.

But it is also true that **there have been cancellations, slowdowns.**

Here, for example, is the way second-quarter estimates have gone: Put at an annual rate of $38-billion originally, the program soon was pulled down to $37.3-billion. It seems to have wound up at just $37-billion.

Once it was popular, and quite logical, to believe that work which wasn't done one year would be carried over into the ensuing year's backlog. But **there's little tendency now to presume that 1958 will profit from 1957's shortfalls;** need for new capacity no longer seems pressing.

—•—

Confidence in the business future, overwhelmingly evident a few months back, has ebbed conspicuously from the securities markets.

The story tapped out on the stock exchange ticker tape is all too familiar by now. Investors who paid top prices, dreaming of profits in the sixties, now are flinching at the sight of 1958.

You can read a business message in the money markets, too. Look at them the way you might at commodity futures:

- **Short-term rates stiffened** again this week (on commercial paper, Treasury bills). Demand, for the time at least, still exceeds supply.
- **But long-term borrowing costs are easing** ever so slightly. In other words, investors aren't too sure demand for money will remain so strong. And if they expect easier money, they must look for lower business volume.

—•—

Construction, for the second year in a row, seems very likely to run below the year before in physical volume though setting new peaks in the actual dollar outlays. Costs more than cancel out the gains.

Moreover, even dollar value will be down on privately financed work.

Steadily rising spending on public works alone is keeping the totals ahead of a year ago. And highways more and more are emerging as the public works mainstay as the new federal program slowly gets going.

Public works outlays last month broke all records at $1½-billion, a round 10% higher than the August figure a year ago.

Looming large in that total was $620-million for highways. This was $75-million more than ever before was put into roads in a single month. And it was $90-million, or 17%, better than the same month last year.

Industrial needs for new structures seem to have topped off (to the surprise of no one, with emphasis on modernization instead of expansion).

For a full year, the estimates compiled jointly by the Commerce and Labor Depts. had industrial construction expenditures holding almost exactly at $270-million a month. But July and August began to fall away.

Allowing for the steady rise in building costs, the turn came some time ago, of course—probably in the early autumn of 1956.

Housing, giving some evidence of an upturn, may bolster privately financed construction a bit. Home starts in August were at an annual rate of 1,010,000, 30,000 above July and the best so far this year.

—•—

Each month since March, manufacturers of durable goods have booked a smaller volume of new business (in dollars) than in the same month last year. And, in every month this year, the value of new orders (seasonally adjusted) has been less than that of goods shipped.

This consistent excess of sales over new orders has, by now, nipped almost $5-billion or 7% off backlogs of unfilled orders. This leaves a backlog equivalent to four months' shipments, but the downtrend would begin to look ominous if it were to go on much longer.

—•—

Employment conditions continue to reflect the hesitancy of business.

The increase of not quite 250,000 jobs in nonfarm work from July to August is described by the Dept. of Labor as "modest in relation to the rise in most recent years."

Nevertheless, **nonagricultural employment was nearly half a million higher than at the same time last year,** totaling 52.8-million.

Unemployment remains low—declining, in fact, during August in spite of the fact that employment was declining, too. You see here a good example of a lot of people leaving the job market when work isn't easy to find.

—•—

Dovetailing indicators, such as this week's grist analyzed in the foregoing items, **point more to deflation than to inflation in 1958.**

That's why you hear more talk these days about "doing something."

There's the feeling that money won't be allowed to get any dearer and that the next major change will be toward ease. And the possible need for a tax cut to stimulate consumer buying already is receiving some official attention (BW—Aug.31'57,p41).

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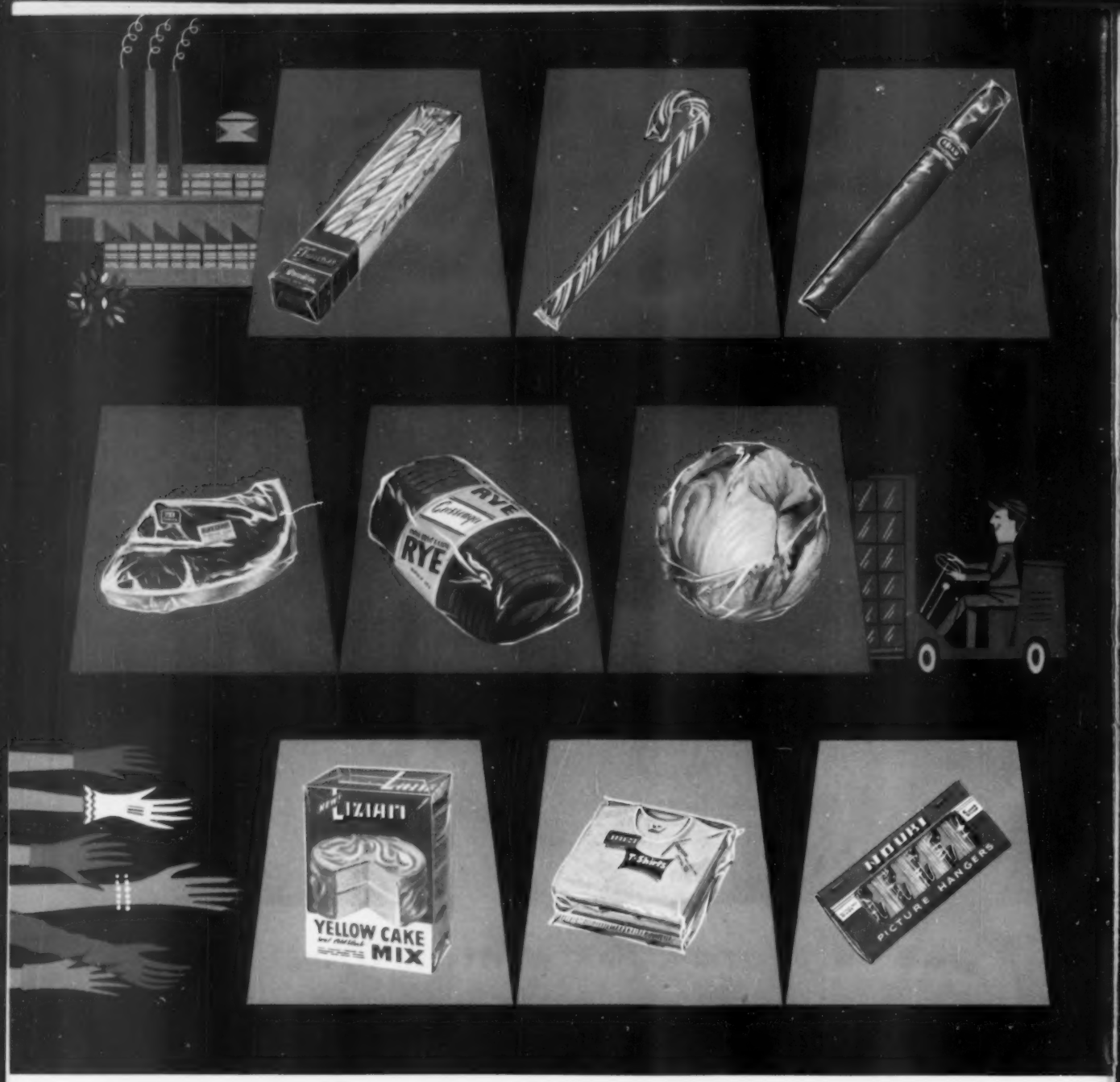
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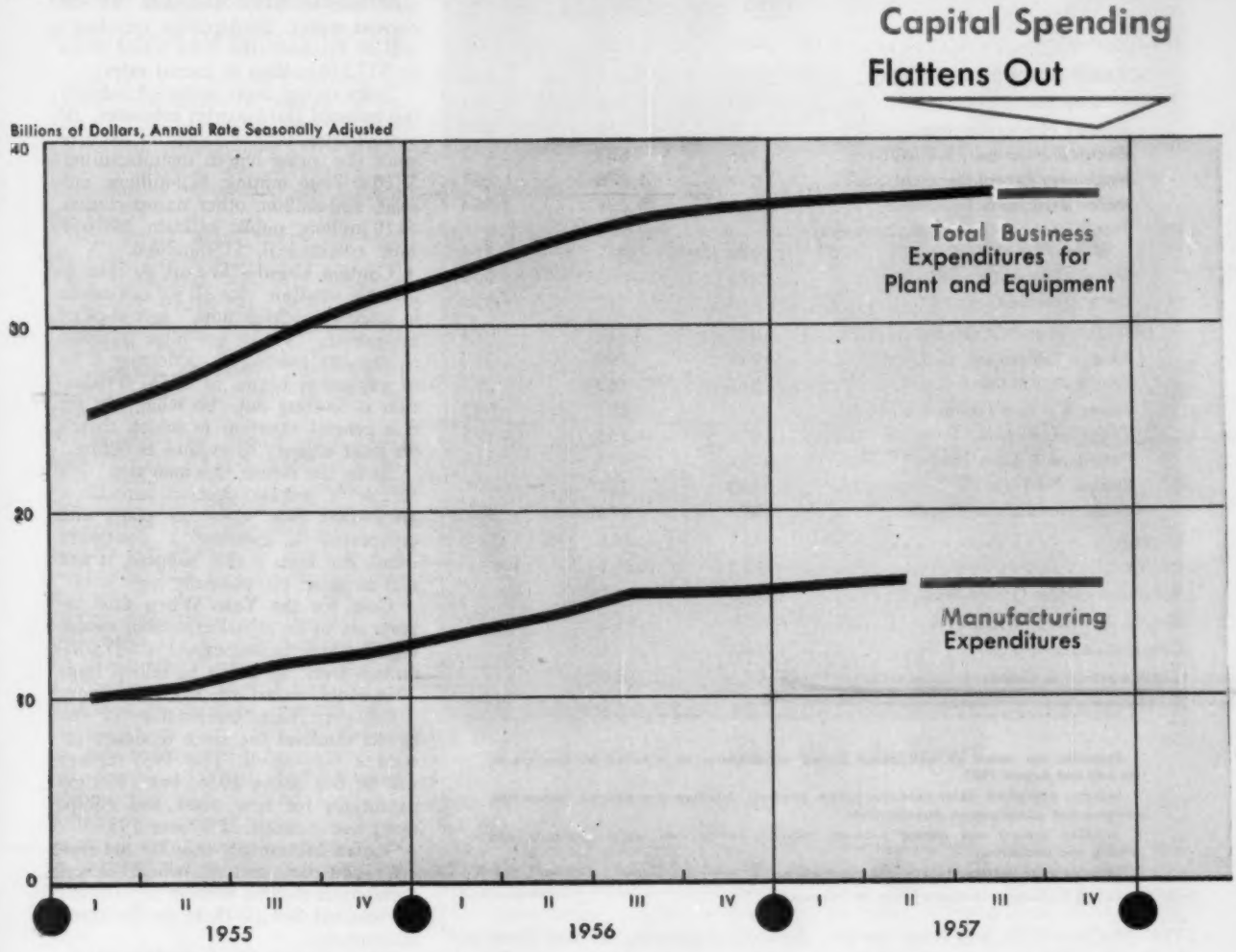
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BUSINESS WEEK

SEPTEMBER 14, 1957

NUMBER 1463



Data: Securities & Exchange Commission; Dept. of Commerce.

The End of a Two-Year Climb

Business spending on expansion in the fourth quarter will show first quarterly drop since early 1955. The expected drop is tiny, but it could mean a flattening-out of the economy.

TAKE another look at the chart above, especially the right hand side. What you see is a vital piece of information for economic forecasters—and a warning.

For nearly three years—since early 1955—business has felt the drive of a constantly expanding program of spending for new plant and equipment. This capital spending was one of the main things that pushed the economy to record heights in 1956 and has kept it at the peak or close to it through 1957.

Now, as the chart shows, capital spending has stopped growing. It has flattened out. It is still at a record level, but it is not getting any bigger.

• **Lessened Pressure**—Inevitably, all business will feel the effects of this change. The upward pressure will be less. If consumer spending and government spending do not rise, the whole economy will tend to flatten out. And if there is a bobble in either the consumer or the government sector, the impact will be greater because it will not be cushioned by a rising total of capital projects.

These figures do not spell out the business outlook for 1958. For one thing, quarterly figures can bobble—what looks now like a drop in the quarter-to-quarter rate of spending may be wiped out in future revisions. And the quarterly figures, of course, do not forecast beyond this year.

The first of the more reliable sets of figures on an annual basis will come in October. Then McGraw-Hill's Dept. of Economics will make its preliminary survey of plans for capital spending in

Expenditures on New Plant and Equipment by U. S. Business

(Millions of Dollars)

	1955	1956	1957*
Manufacturing	$11,439	$14,954	$16,191
DURABLE GOODS INDUSTRIES	5,436	7,623	8,218
Primary Iron & Steel	863	1,268	1,684
Primary Nonferrous Metals	214	412	875
Electrical Machinery & Equipment	436	603	653
Machinery Except Electrical	809	1,078	1,257
Motor Vehicles & Equipment	1,128	1,689	1,194
Transportation Equipment, Excluding Motor Vehicles	274	440	596
Stone, Clay & Glass Products	498	686	604
Other Durable Goods **	1,214	1,447	1,355
NONDURABLE GOODS INDUSTRIES	6,003	7,331	7,973
Food & Beverages	718	799	828
Textile Mill Products	366	465	397
Paper & Allied Products	518	801	847
Chemicals & Allied Products	1,016	1,455	1,795
Petroleum & Coal Products	2,798	3,135	3,418
Rubber Products	150	201	208
Other Nondurable Goods #	437	475	480
Mining	957	1,241	1,242
Railroad	923	1,231	1,457
Transportation Other Than Rail	1,602	1,712	1,751
Public Utilities	4,309	4,895	6,254
Communication	1,983	2,684	10,135
Commercial & Other †	7,488	8,364	
TOTAL	$28,701	$35,081	$37,030

* Estimates are based on anticipated capital expenditures as reported by business in late July and August 1957.

** Includes fabricated metal products, lumber products, furniture and fixtures, instruments, ordnance and miscellaneous manufacturers.

\# Includes apparel and related products, tobacco, leather and leather products, and printing and publishing.

† Includes trade, service, finance, and construction.

Data: Securities & Exchange Commission, Dept. of Commerce. ©BUSINESS WEEK

1958. McGraw-Hill's long-range survey of plans for 1957 through 1960 (BW–Apr.27'57,p41) showed business planning to hold capital spending at a high level.

The quarterly figures are the best indicator of what is happening right now–and they suggest that the lift given all business in 1956 and 1957 by rising capital expenditures has come to an end.

If businessmen stand by their intentions–as reported by the government in late July and August–the fourth quarter of 1957 is going to be an actual reduction in capital spending compared with the third quarter.

That is something that has not happened for the past two years. But it's the message carried by figures released this week by the Securities & Exchange Commission and the Commerce Dept.

• **Consecutive Rises**–Since the first quarter of 1955, when the 1954-1955 dip carried spending for new plant and equipment down to a seasonally adjusted annual rate of $25,650-million, the SEC-Commerce series has shown nothing but quarterly rises. The upward march has brought it to the $37,230-million annual rate that is estimated for the current third quarter.

Now, the estimated annual rate for the fourth quarter shows a small break –a downturn to $37,170 million. To be sure, that's only $60-million, and annual rate at that–a tiny fraction in the immense context of a full economy. But it poses some questions.

Government economists who live closest to the figures do not read this report with dark pessimism, but most of them feel that the downward trend will hold for some time.

One of them takes it to be no good omen that third-quarter estimates reported this week have been scaled down by $660-million, at annual rates, since those estimated last spring. This amounts to about 1¾%.

In May, when businessmen reported for SEC-Commerce's last previous survey (BW–Jun.15'57,p47), they listed plans that indicated a third-quarter annual rate of $37,890-million. In the current report, third-quarter spending–still an estimate–has been scaled down to $37,230-million at annual rates.

Since spring, every sector of industry has reduced third-quarter estimates. At annual rates, they've fallen off like this since the spring report: manufacturing, $210-million; mining, $20-million; railroad, $80-million; other transportation, $110-million; public utilities, $90-million; commercial, $150-million.

• **Caution Urged**–"We are so close to a stable situation that all we can advise is careful watching now," says another economist. "We've got huge increases in capacity coming in, reflecting a lot of expansion begun in 1956. Production is leveling out. So what you see is a general situation in which there's no great urgency to expand as before."

As for the future, this man says, "It's strictly a private opinion–actually a guess–that this series on plant and equipment is entering a downward trend. But even if that happens, it will still be at an exceptionally high level."

• **Gain for the Year**–When final reports are in on actual expansion spending, the statisticians expect a $37,030-million level, up nearly $2-billion from 1956's old record of $35,081-million.

But even here, examination of the figures discloses the same tendency toward a topping-off. The 1957 figures will be 6% above 1956, but 1956 expenditures for new plant and equipment had zoomed 22% over 1955.

• **Varied Movements**–Among the various industrial sectors, where actual spending is charted without adjustment for seasonal factors, there are divergent movements.

Nonferrous metals, despite recent unfavorable price situations, show the largest year-to-year change in capital outlays–an increase of more than 100%. Moreover, this industry, according to present plans, will be bucking the general trend toward fourth-quarter reductions, as compared with the third quarter. Outlays are estimated at $252-million in the current period, $259-million the fourth quarter.

• **Oil Cuts Back**–But the petroleum industry, also endowed with a brilliant growth potential, is joining the bulk of other industry in slowing down. Not only is its fourth-quarter intention ($869-million) down from third-quarter estimates ($929-million), but it is also lower than the final period of 1956 (actual, $892-million). The explanations include high gasoline stocks, worries about foreign imports, fewer wells drilled.

Help for Feeders

CAB can now guarantee up to 90% of cost of new planes for the local airlines. It can mean curtains for DC-3s.

The DC-3, 21-year-old Dobbin of the airlines, may finally be headed for pasture. The feeder airlines—stuck for years with second-hand DC-3s—now have the financial lever they needed to buy some of the newer faster types of planes.

The lever is a law signed this week by Pres. Eisenhower, permitting the Civil Aeronautics Board to guarantee up to 90% of the price of new planes bought by the 28 local, territorial, and helicopter lines, provided they can't get the loans elsewhere. There's a $5-million ceiling on loans to any one line.

• **Subsidies**—The feeder lines have been drawing about $30-million a year in government subsidies. With new equipment, they stand a good chance of eliminating their subsidized losses and perhaps getting into the black, according to the Assn. of Local & Territorial Airlines.

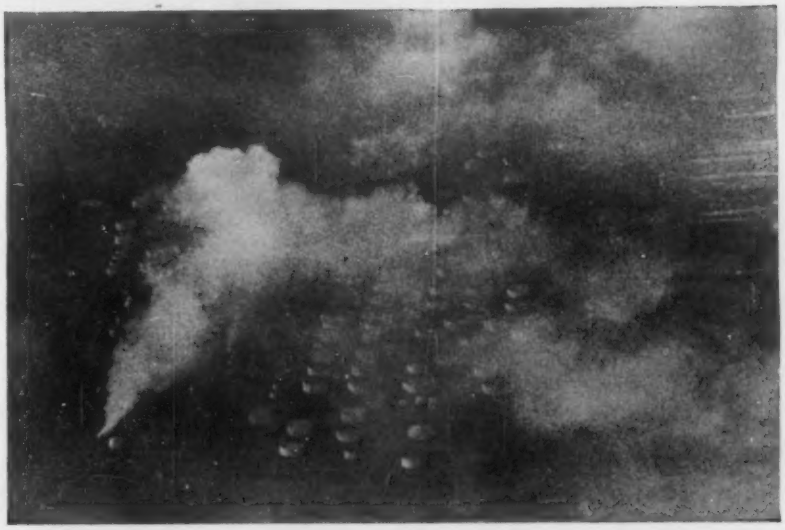
The associations say the new law will enable the lines to confirm orders for planes such as the Friendship F-27, a 40-passenger turboprop that can top 270 mph. and will be ready for delivery early next year. The DC-3s—90% of the feeders' 250 transports—carry between 20 and 30 passengers at speeds around 160 mph. With fast, comfortable, pressurized planes, the feeder lines will get more traffic at lower seat-mile costs, and will bring jet age services to communities that the big lines cannot afford to reach, the association says.

Even with the CAB guarantee, many small airlines will have trouble raising the downpayment. They had been hoping for a law letting them set aside profits on the sale of old equipment for the purchase of new, instead of applying them to offset their federal subsidy as is the case now. But this measure got only through the House; it's due for Senate consideration next year.

• **Equipment Trusts**—The local airlines got one other boost earlier, with the amendment of the bankruptcy laws to let airlines set up equipment trusts similar to those used by the railroads to buy rolling stock. If an airline goes bankrupt, the lenders get first rights to repossessing the equipment bought through the trusts. It was the small airlines that built up the steam to get this measure through Congress, though it applies to all lines.



Airplanes Spot the Heavy Smokers . . .



. . . On a Smoggy Day in L.A. Town

Los Angeles has taken to the air in the battle against its No. 1 nuisance—the acrid, clinging clouds that all the world now knows as smog. From a plane hovering over the haze-blanketed city, enforcement officers of the Los Angeles County Air Pollution Control District can spot violators whose chimneys are belching offensive fumes (pictures, above and right).

For the air attack on smog, launched about two years ago, the APCD uses either a helicopter or a Cessna 182, both of which fly sheriff's office colors. Sometimes the smog is so thick it's hard to spot any one offender. But more often observers in the planes can single out smog sources that might be invisible from the ground.

• **Air to Ground**—When they do, they photograph the violation from aloft—for evidence if the case should come to court—and notify ground patrols. If the ground patrols find that the violation recurs, they issue a citation. Eventually, radios will link the two forces.

In the 30 months of the anti-smog regulations, 7,541 cases have been filed, 96% have led to conviction.

The smog foes have other, more scholarly uses for aircraft. They study auto exhaust fumes in rush hours on freeways, sample the smog content of air, and survey the entire Los Angeles basin with an eye to possible rezoning in some industrial areas of high smog concentration.



GROUND patrolman photographs an offending chimney first noticed from above.



TIDE GOES OUT and supplies come in. Bargeloads of stuff for Frobisher air base on Baffin Island are floated in at high tide, unloaded at low. Operation costs $75 a ton.



ESKIMO residents inspect drying thongs for dog team harnesses.



NEW VILLAGE (right) is springing up 3 mi. from airport to accommodate personnel.



MORE DOGS than people at Frobisher—and they're full of curiosity.

Whistle Stop on New

ANY AIR TRAVELER who has ever groaned at first sight of Gander, the Newfoundland refueling stop on the Atlantic run, will scream when he sees Frobisher Bay, the Baffin Island refueling stop on the new West Coast-to-Europe route through the polar region (map).

Gander has been established long enough at least to provide comforts for the transients who have to wait out an hour or so on the ground. Frobisher Bay has no waiting room but the hangar, no running water or toilets within a quarter-mile.

• **Toughing It Out**—Of course, the pioneers of the new transpolar route are going to take the edge off the rigors of the Frobisher stop as soon as possible. But the first passengers on Pan American World Airways' flights, which began this week, are going to have to take it in all its grim unloveliness.

Pan Am is first of the airlines to land at Frobisher, but Trans World Airlines will probably also stop over there when it starts flying from the West Coast to London on Sept. 29 and to Paris on Oct. 2. SAS, the Scandinavian airline that started the polar route on Nov. 15, 1954, flies nonstop to Copenhagen, and Canadian Pacific flies a different transpolar route from Vancouver to Amsterdam.

• **Claim to Fame**—Frobisher Bay is an outstanding example of how the Air



FUEL TANK being rushed by Shell Oil men to supply airliners would cost $90,000 in most places, costs $325,000 at Frobisher.



PAN AMERICAN'S trail-blazing DC-7 rests at Frobisher hangar before flying on through the Arctic to European destinations.



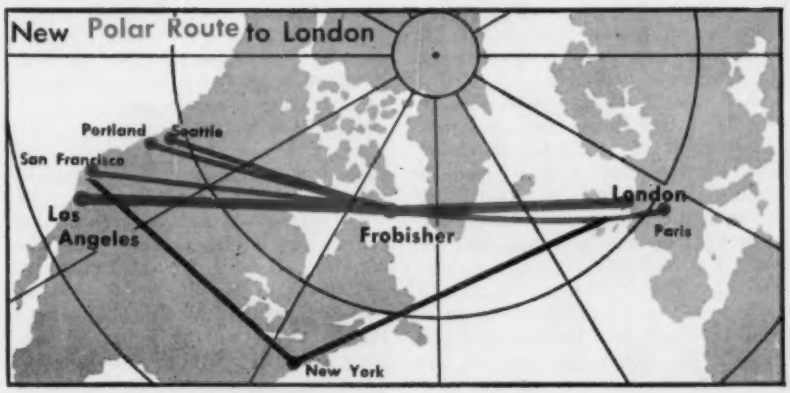
Polar Air Route to Europe

Age brings notice to some of the most unlikely places on earth. Until a few years ago, it was merely the site of the largest Eskimo community in the eastern part of the Northwest Territory—a shaky basis for any chamber of commerce claims. Then the construction of the DEW Line (Distant Early Warning radar chain) began, and the Royal Canadian Air Force built an airport to serve the DEW center there.

On Sept. 1, the Canadian Dept. of Transportation took the airfield over.

• **Foul Ball—One** thing can be said about Frobisher: It has been consistent in the way it has disenchanted its visitors.

The bay and town are named after



Martin Frobisher, Elizabethan captain who became icebound while looking for the Northwest Passage. He wouldn't have chosen the site for a winter resort, but he and his men were delighted to find gold-bearing rock on the shore. They loaded their two ships with the rock and sailed back to England as soon as they could.

But the gold wasn't gold, as it turned out, and Frobisher died in disgrace. The 200 American GIs stationed at his name town in connection with the DEW Line have been heard to wish he had never been born to find the place.

• **Exclusive Group**—Frobisher is built on rock that slopes up from the bay to a height of about 350 ft. There's the airport, the barracks town for 200 Americans and eight RCAF men a quarter-mile away, and the Eskimos' "city" of white tents for 163 families, off-limits for white men. The Eskimo population is not precisely known, but at least 640 dogs have been counted.

Three miles from the airport is the New Frobisher Bay Site, where seven white families live, including the only eight white women in the region.

• **Hard to Build**—The Canadian government, Pan Am, and Shell Oil Co. are working against handicaps to make a usable commercial airport. Hans Peterson, airport manager, is supervising extension of the runway by 4,000 ft. to accommodate DC-7 and Jetstream airliners more easily. He is trying also to whip up a few comforts for passengers.

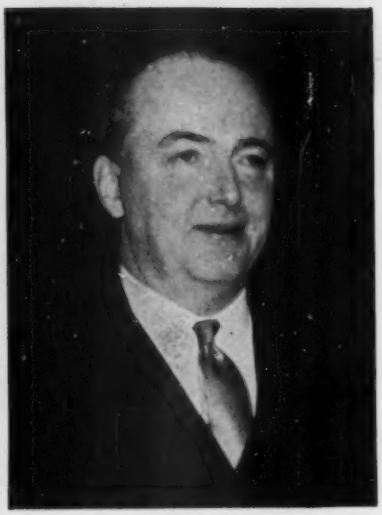
Pan Am dropped two men off on a "proving flight" a few days ago to act as its permanent staff at Frobisher. One is a chief mechanic; the other, Gordon Cragg, station operations manager. Cragg's previous assignment was at Canton Island, 160 mi. south of the Equator in the Pacific Ocean.

Pan American will build quarters for its base personnel and for flight crews. Until these accommodations are ready, planes will fly the route with double crews; afterward, crews will rest overnight at Frobisher. The crew dormitory will have the only flush toilets on Baffin Island, but the septic tank has to be above ground because of the permafrost. Pan Am has stocked one spare engine at Frobisher.

Shell Oil is rushing work on an 80,000-bbl. fuel storage tank, but time is getting short. Fuel for the commercial planes has been shipped in drums. These drums, and everything else from the ships in the harbor, can be brought in only by barges that are beached at high tide, unloaded at low. And the harbor is ice-free only 8 or 10 weeks a year. Oil tankers will stand by to fill the Shell tank the moment it is finished; the supply will have to last 10 months.



FOR THE U. S., new Treasury Secy. Robert B. Anderson must cope with the reappearance of a world dollar problem.



FOR BRITAIN, Chancellor of the Exchequer Peter Thorneycroft will be defending the badly battered pound.

Meaty Talk on Money

At the upcoming International Monetary Fund meeting, the free world's money managers face urgent problems—including whether to adjust European currency rates and what to do about the threat of crisis in international trade.

THE FINANCE MINISTERS and central bankers of the free world will have plenty to talk about when the annual meeting of the International Monetary Fund opens in Washington Sept. 23. It may prove the most important IMF session since September, 1949, when devaluation of the pound sterling set off a whole series of currency adjustments.

Although nothing so dramatic can be expected this time, there is sure to be heated discussion—in the corridors, if not from the rostrum—of some basic issues involving the stability of international trade. There may even be talk of an impending international trade crisis.

Ever since the British used the 1949 meeting of the fund to announce their devaluation, there has been speculation in international money markets in advance of each year's gathering. This summer the speculation has been especially feverish, because of the semi-devaluation of the French franc Aug. 10. This led to a spate of rumors that sterling might be devalued and the German D-mark revalued upward (BW—Aug.24'57,p130).

• **Some Question Marks**—Things have calmed down on the currency front since August. But these important questions still are on the minds of both currency speculators and the finance ministers:

• Should there be further exchange rate adjustments in Western Europe, especially for the pound and mark? For example, should the margins within which the official pound and mark rates now fluctuate be widened? Under such a setup, the mark could float up in value by, say 5%, and the pound down by the same amount. To make this possible, the British and Germans would need the fund's approval.

• Should the IMF extend its full credit facilities to nations such as France and India that need exchange reserves but don't fully live up to IMF credit standards? Last year, during the Suez crisis, the fund suddenly emerged as a major force in international monetary affairs, and some members now want it to support every weak currency, regardless of the underlying causes.

• Is there a wider problem the IMF should tackle—the threat of a world liquidity crisis? In such a situation, the funds for financing trade are so short and badly distributed that many nations literally cannot lay hands on the means of making international payments. This would paralyze international trade with frightening speed.



FOR WEST GERMANY, Minister of Economic Affairs Ludwig Erhard won't be there, but his D-mark is a problem.

Awaits IMF

According to a number of British financial observers and some Germans, this threat is very real. One German economist says the liquidity problem in Europe today may soon be comparable to that of 1930-31.

A few weeks ago, there was a feeling in international banking circles that, during the IMF session, agreement would have to be reached behind the scenes to bring the pound and mark—not just the franc—into line with financial realities. This might be done two ways: (1) revaluing the mark upward to a new fixed parity or (2) letting the rates of both the pound and mark fluctuate by considerably wider margins than they do now.

Otherwise, the feeling went, August's vast speculative movements in favor of the mark—and at the expense of sterling—would continue. During August alone, London lost $225-million from speculative pressure.

I. Quelling Rumors

However, in the past week or two, both London and Bonn have sternly rejected any idea that their currencies need readjustment. Bonn has finally spiked rumors of a D-mark revaluation. Together with London's determination to back its present currency rate with all its resources, that has halted the bear raid on the pound.

Now it seems unlikely that anything—even recommendations—will come out of the IMF meeting about the pound and mark. In fact, IMF is likely to leave the problem for the October meeting of the Organization for European Economic Cooperation, when exchange rates can be judged in relation to their effect on formation of the European Economic Community and the proposed Free Trade Area.

• **German Action**—The fact is that the West Germans, even before their Sept. 15 elections, have been moving cautiously to correct their overly strong creditor position. They have done this by advancing the repayment of some of their foreign debts. In addition, steps probably will be taken to increase imports and thus reduce the country's huge export surplus.

Assuming Chancellor Adenauer's party wins the election, it will be Economics Minister Ludwig Erhard who will guide any policy shift.

• **Less Time for France**—France, with its claim for new IMF credits, may not occupy so much attention at the IMF session as once seemed likely. Even in Paris, there's a feeling that the peak of the French crisis has passed—largely because of the partial devaluation and the severe import restrictions imposed during the summer. Of course, an upward wage-price spiral this fall could wipe out recent gains. But for the moment, the French seem most interested in convincing IMF that it's time for the Germans to do something about the mark.

As for India, it looks as if Prime Minister Nehru has decided to bid for financial help from the U. S. rather than the IMF (page 166). In recent months, it has become increasingly clear that India needs development assistance, not short-term credit to cover a temporary swing in its balance of payments.

II. Threat to Trade

Although European exchange rate adjustments and India's problems seem less urgent, a bigger problem has loomed. It's the threat of an international liquidity crisis that might bring a drastic slump in world trade. Apparently the threat looks serious enough to the British government for Chancellor of the Exchequer Peter Thorneycroft and his advisers to raise the question in Washington.

• **Grim Analysis**—According to what might be called the "gloomy school" of European observers, a shortage of international finance and credit might cripple world trade overnight. Rising interest rates and spreading restrictions on trade and exchange are the symptoms. A critical downward swing—such as the slump in copper—could set off a chain of insolvencies that, in turn, could lead to panic restrictions by governments to conserve dwindling external resources.

Most of the pressure from the international shortage of finance has been on Western Europe. But it is very widespread—partly because of the workings of the sterling area, partly because of the weakness in international commodity markets. Many countries—France, Denmark, Finland, India, and others—have imposed trade curbs.

• **How It Happened**—The "gloomy school" traces the liquidity crisis to three factors:

Reappearance of the dollar problem. Instead of contributing a net flow of dollars to the outside world—as it did from 1952 to 1956—since last fall the U.S. has been drawing dollars out of the international system. From the second quarter of 1952 to the third quarter of 1956, foreign nations increased their gold and dollar holdings by about $7.5-billion, as a result of transactions with the U. S. This expansion permitted the liberalization and growth of world trade—and a big increase in U. S. exports.

West Germany's export surplus. West Germany's spectacular burst into the world trading system has brought it a persistent export surplus without any mechanism for lending the proceeds abroad. Instead, Germany has pulled in gold and sterilized it. In fact, German traders borrow heavily in London, Amsterdam, and elsewhere to finance their trade. West Germany's gold and hard currency reserves now total $5.5-billion—twice what they were 2½ years ago.

Speculation. Then, this summer, there has been the big speculative movement of money into Germany, in anticipation of an upward revaluation of the mark. This has drained the international system of finance still more.

• **Some Help**—As combined pressures from the U.S. and West Germany continued without relief, some of the pressure was absorbed by the central banks of France, Britain, the Netherlands, and other countries, which have let their reserves run down. And the IMF has helped to bridge the gap with credits provided since the Suez crisis last fall—something like $1-billion in drawing rights and another $1-billion in standby credits.

But according to the pessimists, a world crisis may still be near. The only remedies in sight:

• A quick change in German financial policies.

• Special measures to stimulate more U.S. private investment abroad.

• A supply of additional dollar funds to the IMF by the U.S., West Germany, and Canada.

This gloomy theory, in short, is that world trade has outgrown the supply of financing. The system now works on such a small margin of liquid assets that any holdup of funds by a major world trader can be a threat to its entire stability.

Soviet Scientists Emerge From



BOASTS about Russia's earth satellite for International Geophysical Year came from Dr. Valerija Troitskaya.



USUALLY ALOOF, the Russians switched at Toronto to charm, submitted genially to quizzes from the press.





FRIENDLY TACTICS of Soviet delegates made plain that Russia, proud of strides in science, wants to brag. This was biggest group of Soviet scientists ever to visit North America.

Curtain to Crow About Progress





"IF YOU ASK ME, the Russians are giving us a peek at their new elite class." That's how one British scientist at the 11th world assembly of the International Union of Geodesy & Geophysics in Toronto described the largest delegation of Soviet scientists ever to visit North America (pictures). Some of Russia's top scientists were at the IUGG conference literally to find out more about what makes the world go around.

The 53 Russians represent the biggest display of Soviet scientific know-how let loose in the West since the Geneva conference on peaceful uses of atomic energy three years ago. Most of them are also taking part in the world-wide International Geophysical Year (IGY) (BW–Jul.6'57,p104) and the recent tests of the Soviet ICBM.

At the last IUGG world assembly, in Rome in 1954, the Soviet delegates were characteristically silent. This time, though, the Russians have been giving impromptu press interviews, chatting privately with reporters on request, and mixing freely at receptions. Their friendliness and professional ability have taken Toronto by storm.

I. Soviet Progress

The leading Soviet delegates at Toronto announced a number of recent developments in their nation's contribution to IGY activities.

• **Earth Satellites**—Dr. Valerija A. Troitskaya, secretary of the Russian IGY committee, said Russia's earth satellite for the IGY program will be launched next spring in an orbit "to make it observable by a maximum number of people in the maximum number of countries." It has long been known that Russia planned a polar orbit for its man-made moon, instead of the path near the equator that will be followed by the U.S. satellite. Russia touted the Soviet plan as offering "a much wider scope for world scientific observation"—which it certainly does as far as observation points in Communist countries are concerned.

Mrs. Troitskaya was somewhat vague as to the details of the Soviet satellite. Some would be bigger, some smaller than the 21-lb. U.S. model, she said. Whether more than one would be launched "would depend on the success of the first." This vagueness tends to confirm the conclusion that the Russians have yet to build a model of their satellite and to decide on its size and weight. The U.S. moon is all ready—even though the three-stage rocket that will deliver it to its orbit has not yet been tested.

However, just to beat the U.S. to the draw, there's no reason to believe that the Russians might not improvise a satellite and use one of their new ICBMs to put it up into its orbit.

• **On Ice**—In the Arctic and Antarctic, the Soviets have already begun to expand scientific expeditions for IGY. E. I. Tolstikov, deputy head of the Northern Sea Route Administration (responsible for Russia's strategic Arctic Ocean passage), will head a new venture into the Antarctic soon. His purpose, he says, will be to make meteorological and hydrological observations for IGY and add to general knowledge of the atmosphere. There are now four Soviet Antarctic bases in place of the original one. Interestingly, the U.S. and the U.S.S.R. are the only two nations active in the Antarctic that make no territorial claims to the region.

The Russians now have two new ice floe teams adrift in the Antarctic Ocean. Tolstikov's new expedition will set up two stations:

• One base will be at the geomagnetic pole, on the theoretical axis of the earth's magnetic field.

• The other will be at the "Pole of Inaccessibility," the point on the subcontinent farthest from the sea.

The Russian teams plan to take with them about twice as much equipment as the U.S. has at its IGY stations in the Antarctic. For this assignment, a big Il-12 transport (about the size of a Convair) and an LI-2 (the Soviet copy of the C-47) are available in the polar region.

• **Atom Power**—The head of Russia's delegation at Toronto, Dr. Ivan Bardin—vice-president of the all-powerful All Union Academy of Sciences in Moscow—revealed that the world's first atomic-powered icebreaker is now under construction in Leningrad. It will be ready for the Arctic Sea route by 1959.

• **Magnetic Studies**—It was obvious from the conference that the U.S.S.R. is as advanced as the West in studying geomagnetism. Of the 53 Soviet delegates, 20 read papers in this field. One scientist from an Iron Curtain country carried a recent issue of an East German shipping magazine with a report of the first nonmagnetic ship ever built. Called the Zarya, this vessel is being used by Russia in an 18,000-mile, 18-month study for IGY under the direction of the Moscow Institute for Earth Magnetism.

II. Meaning for the West

What does all this Soviet activity add up to? One thing is sure: The U.S.S.R. is proud of its recent scientific

advances, and it's ready to tell the world about them.

• In nuclear physics, the Russians have been especially successful in developing particle acceleration.

• In mathematics and low-temperature physics, their competence is high.

• In combustion and in chemical kinetics, their work is probably the finest in the world.

• Of more immediate impact, Soviet scientists obviously knew enough about the ionosphere and remoter reaches of space to beat the U. S. to a successful ICBM launching. Perhaps, too, they have even tested metals and fuels in the distant layers of outer space.

• **Genuine Experts**—Some of the Russians at the assembly are the equal of Western experts in their fields. "Take their top oceanographer here," says a Danish scholar. "I have met him many times before. After spending over a year on a floating ice station and another year in the Antarctic, he knows as much—maybe more—about sea ice movements than anyone in our field."

Adds another Western scientist: "Most of them read German; a lot of them speak German. In my mind there's little doubt that their best brains have access to the best the Germans produced during the last war on mechanisms that operate in outer space.

• **Skeptics**—Not all the scientists at Toronto were completely enthusiastic about the visitors from Moscow. "Russians can be very shaky when it comes to the fundamental teachings of science," says Sir E. Bullard of Cambridge University, one of Britain's top geophysicists. And Dr. L. V. Barkner of the U. S., the originator of IGY, doubted the worth of the Soviet sea surveys of the earth's magnetism. The aerial magnetic surveys taken in North America—chiefly by Canada—are probably better, he thinks.

Other American scientists were skeptical of Soviet chances for launching their satellite in an orbit close to latitude 55 N. "They probably won't be able to do so at much less than 72 degrees," said one.

The big difference between the orbits of the U. S. and the Russian satellites is this: The American version will be fired at an angle of 40 degrees to the equator in a general east-west direction, to take advantage of the earth's rotation; the Russian's say theirs will be launched somewhere between the 50th and 60th meridians, so as to pass over the poles and nearly all the earth's land masses roughly from north to south.

Since Russia's satellite will get no boost from the earth's spin, it will need a much more powerful vehicle. A speed of more than 18,000 mph. is necessary to make anything revolve in an orbit around the globe. But it appears the U.S.S.R. is confident it can fill the bill.

RCA Gets Clear With Zenith

But its $11-million settlement leaves other actions pending—with Philco Corp. and with the Justice Dept. Lawyers aren't yet ready to judge the full effect.

After nine years of legal jockeying, an out-of-court settlement ended a suit by Zenith Radio Corp. against Radio Corp. of America, General Electric Co., and Western Electric Co., manufacturing branch of AT&T. Terms haven't been officially announced, but it is said Zenith will get about $11-million in damages, a clear shot at world markets, and immunity from RCA's patent infringement claims, valued at more than $20-million.

The case wound up dramatically on the very eve of the opening of trial in U. S. District Court, Chicago. Agreement was reached in a Chicago hotel room Sunday night—on the courthouse steps, as the lawyers' saying goes. When court opened Monday, Judge Michael L. Igoe put the case over to Sept. 30 while final papers are signed.

Lawyers say Zenith's $11-million is the largest amount ever recovered in private antitrust litigation, breaking the record set five years ago when Ford paid Ferguson Tractor $9¼-million (BW—Apr.12'52,p28).

• **Wide Open Now**—Until the terms of the settlement are spelled out in the next three weeks—and maybe not even then—attorneys for the government and the electronics industry won't know quite how the case affects other suits in the same field. These suits are in two classes:

• Triple-damage claims by radio-TV manufacturers, alleging existence of a monopoly through pooling of patents. Early this year, Philco Corp. filed a suit against RCA, GE, AT&T, and Westinghouse Electric Corp., seeking $150-million damages (BW—Jan.19'57,p27), and RCA has filed a countersuit (BW—Jun.22'57,p111). At least eight other manufacturers are believed to be in the same position as Philco regarding patents.

• Justice Dept.'s own patent monopoly suit, filed in 1954 and naming RCA, GE, Westinghouse, and AT&T and two subsidiaries (BW—Nov.27'54,-p.29). By the end of this month, government attorneys will file answers to a round of pretrial questions submitted by RCA, but further depositions and documents may be demanded before trial.

While the Zenith-RCA settlement doesn't affect the government case one way or the other, according to antitrust lawyers, the issues parallel and often overlap each other.

• **Complex History**—All three suits are part of the same complicated legal picture, which dates back to 1930. That's when government antitrusters charged RCA, GE, Westinghouse, and AT&T with conspiracy to monopolize radio manufacture through, among things, patent cross-licensing agreements.

This original action was settled in 1932 by a consent decree that required GE and Westinghouse to divest themselves of stock control of RCA. These two companies and AT&T, furthermore, agreed not to give RCA exclusive licensing rights in future exchanges of patents.

In 1954, the Justice Dept. suit charged that the defendants had conspired to get around the 1932 decree and to give RCA the radio-TV patent licensing business without serious research competition from the others. It also charges that RCA, after 1932, bought patent rights from many of its important licensees and in effect destroyed the right of these companies to issue licenses themselves. Zenith and Philco are among these companies.

• **The Private Suits**—Meanwhile, Zenith and RCA had squared off in civil actions. Zenith started it in Wilmington, Del., in 1946, and RCA, GE, and Western Electric opened a countersuit in 1948 for alleged patent infringement by Zenith. Litigation involved 64 patents at one time, but the list was narrowed to 23, including 10 on TV. Trial on the first of the 23 started in June, 1956, and wound up last June in Zenith's favor.

The Chicago action began in 1948—ironically, at the initiative of RCA. Zenith bought Rauland Corp., its cathode tube manufacturing subsidiary in Chicago, and RCA filed a patent infringement suit the very next day. Zenith retaliated with its countersuit. Judge Igoe stayed proceedings on Zenith's counterclaim, pending outcome of the Wilmington case.

In 1954, a new Zenith counsel, Thomas C. McConnell, filed a new counterclaim in Chicago including GE and Western Electric as cross-defendants, asking damages for being deprived of foreign markets through use of the patents in cartel arrangements. His rival in court was Adlai Stevenson.

Zenith's 1954 claim was for more than $16-million. Last year, this was expanded to $61,750,000 to include alleged losses in England, Netherlands, and Australia, and further losses in Canada and the U. S. since 1954.



A welder joins sections of pipe line which will carry Barinas crude to market. Unlike practice in this country, in Venezuela pipe line is left above ground.

Making History in Venezuela

Deep in the heart of Venezuela, Sinclair's persistence in the search for oil is reaping its reward. That nation's most remote oil field, the Barinas field, will soon send its first oil to market. The volume will about double the crude output of Sinclair's subsidiary, Venezuelan Petroleum Company.

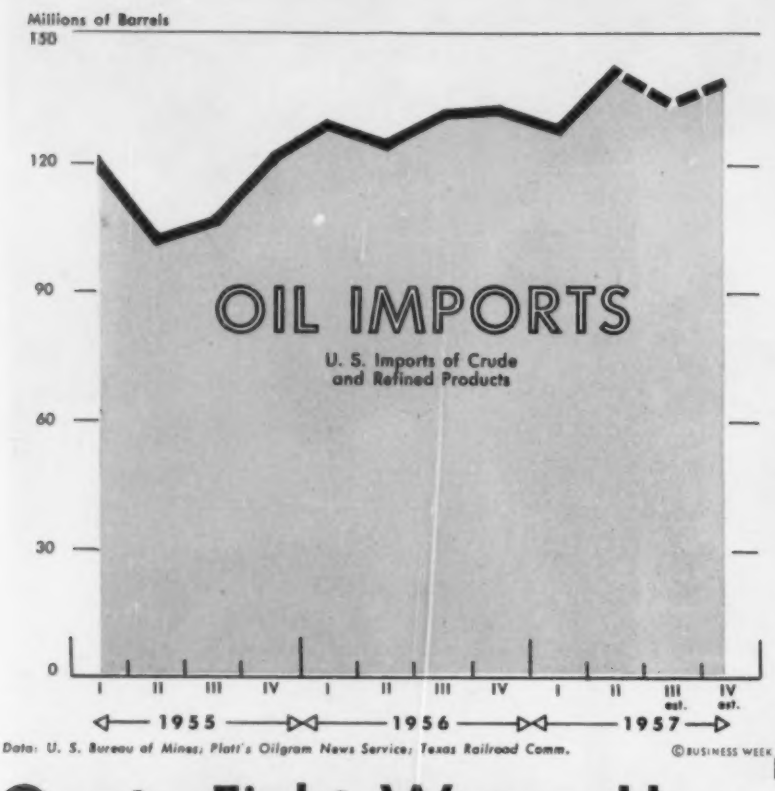
For almost 30 years, Sinclair scoured the Barinas Basin. Its first well in '31 was dry, but exploration continued. Four years ago a wildcat well found oil. Subsequent wells did, too – enough oil to make practical the longest pipe line yet built in Venezuela. Now near completion, this large-diameter line is being built in conjunction with another company and runs 212 miles from Barinas to historic Puerto Cabello on the Caribbean.

The Barinas field is an important addition to the growing list of U. S., Canadian and Venezuelan fields brought to life under Sinclair's expanded crude production program.

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Quota Fight Warms Up

Voluntary controls over imports may be doomed. Hearings in Washington will shape future policy or foreign oil.

EVIDENCE piled up in Washington this week that a miracle of wisdom will be needed to put over the Eisenhower Administration's program to hold down the influx of foreign crude oil without formal controls.

Dozens of oil company men crowded into a small conference room in the Interior Dept. to witness the opening rounds of a series of hearings before Navy Capt. Matthew V. Carson that will help determine whether the government's voluntary program will work.

Spokesmen for three oil companies—Standard Oil Co. (Indiana), Tidewater Oil Co., and Standard Oil Co. (Ohio)—say that the informal quotas laid down recently by the Administration are unfair and asked for increased allocations.

• **The Dilemma**—The government faces this dilemma:

• If substantial upward adjustments are granted, independent U.S. producers are bound to push hard in 1958 for tough new legislation imposing compulsory quotas or tariffs.

• If the appeals for exceptions are denied, the voluntary program may collapse for lack of cooperation by importers and, thereby, virtually force the President to impose formal controls.

Obviously, then, the fate of the entire reciprocal trade program—up for renewal in Congress next year—may hang on the outcome of the hearings.

• **Pessimism**—Many independent U.S. oil producers long ago gave up any hope for a voluntary program. They questioned whether the international companies would ever flout their own economic interests.

Pressure from the independents was chiefly responsible for the defense essentiality amendment written into the Trade Agreements Act in 1955. This provision authorizes the President to impose restrictions whenever imports threaten to impair national security.

The Administration has been anxious to avoid imposing formal controls. It has been seeking for two years to persuade the oil companies to voluntarily hold down the influx of foreign oil.

• **First Try**—Arthur S. Flemming, then Director of Defense Mobilization, first set his sights on holding crude oil imports to the level cited by Congress—some 10.6% of U.S. production.

The big companies that have been importing for years generally cooperated. But, with the cost of U.S. crude climbing all the time, new importers entered the field and the strain on the voluntary program increased.

Last spring, Gordon Gray, who succeeded Flemming as head of ODM, finally threw up his hands and certified to Pres. Eisenhower that imports threatened to impair national security.

A special Cabinet committee appointed by the President affirmed this conclusion on July 29, and recommended a last-ditch program of voluntary restrictions.

The program, immediately ordered by the President, called on the companies—to hold crude imports to 1,031,000 bbl. daily.

• **Protection**—Although the program is voluntary, top Administration officials cocked an eye at fretful protectionist members of Congress and served warning that mandatory controls may be imposed if the companies refuse to go along with the program.

The biggest question has been this: How do you divide the imports pie among the older importers who took the heavy political risk of pioneering overseas operations, and the newer importers who insist they must have increasing supplies of lower-cost foreign crude in order to compete?

The government's formula gave the edge to companies that have been substantial importers since 1954 or earlier, but left the door open a crack for newcomers.

• **Protests**—It came as no surprise that nobody was wholly satisfied.

The first company to be heard this week was the Standard Oil Co. (Indiana), a company with a long history of depending almost exclusively on crude produced within the U.S. The new restriction program came along just when the company was ready to jump its imports in order to serve a new refinery at Yorktown, Va.

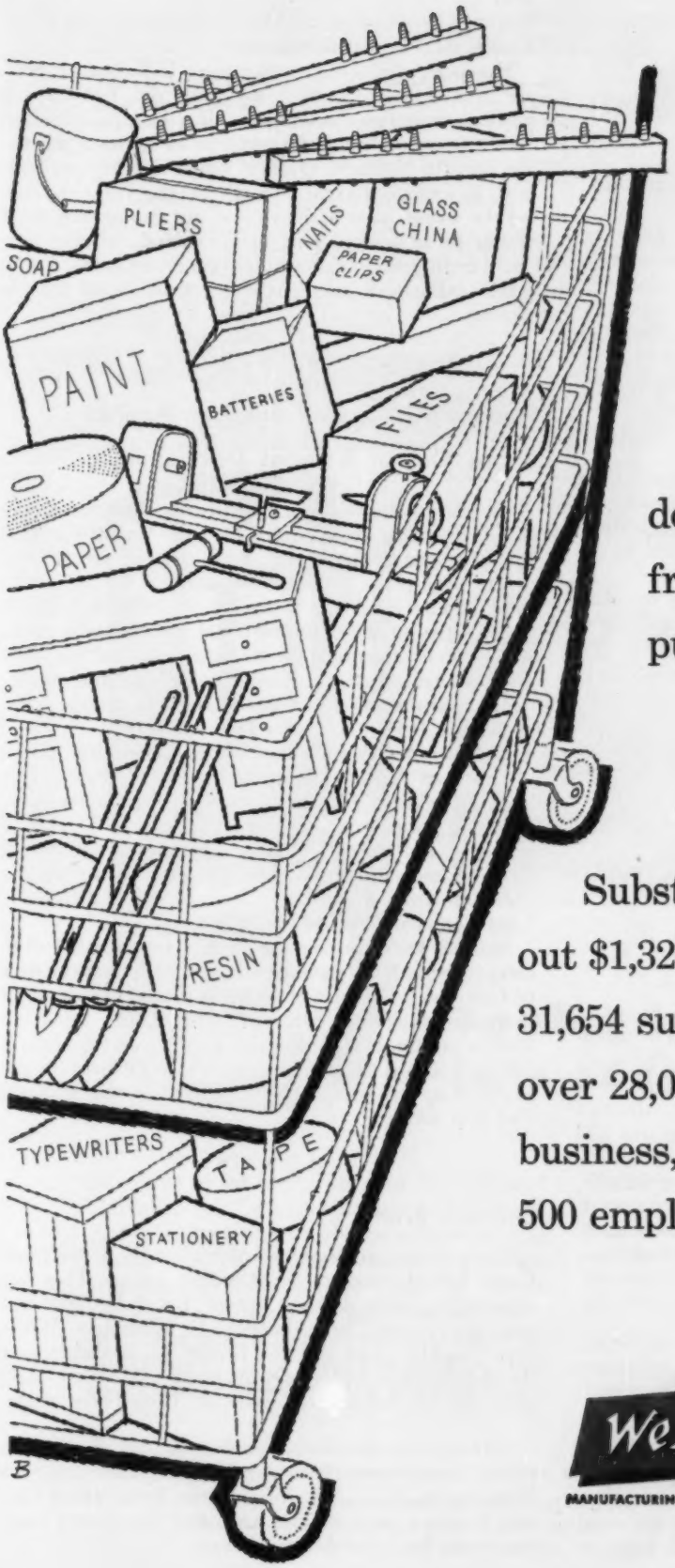
The complaint voiced by John E. Swearingen, executive vice-president, well illustrates the complexities of the problem.

He points out that Indiana Standard, unlike some other importers, increased its crude imports by less than 3,000 bbl. daily in the base period.

"We will be penalized in the future because of our cooperation in the past," says Swearingen. He submitted data showing that, under the government allocation, Indiana Standard will be entitled to import crude amounting to only 4.5% of its needs on the East Coast. In contrast, Swearingen says, established importers are allowed to fill 15% of their requirements with low-cost foreign oil.

• **Economics**—Pointing up the economic disadvantage this involves, Swearingen says crude from Venezuela and the Middle East can be laid down on the U.S. East Coast 50¢ to 80¢ per bbl. cheaper than crude from Texas.

The government approach would perpetuate these "inequities," he claims.



To what extent do small firms benefit from Western Electric purchases?

Substantially. We paid out $1,320,000,000 in 1956 to 31,654 suppliers. Of these, over 28,000 were "small business," having fewer than 500 employees.

Western Electric

MANUFACTURING AND SUPPLY UNIT OF THE BELL SYSTEM

In Business

• • •

Justice Dept. Fights AT&T Move To Get Back Into Private Communications

Justice Dept. antitrusters are fighting the efforts of AT&T to have private communication systems—such as two-way taxi radio and utility company communications—brought under the wing of the Federal Communications Commission. If FCC took on the systems, they would be subject to common carrier regulation.

The fight stems from the 1956 consent decree in which AT&T agreed to get out of the business of leasing and maintaining private communications equipment within five years.

The antitrusters say this means just what it says. But AT&T argues that the ban applies only if the charges for leasing equipment are not subject to public regulation; hence, FCC regulation would mean it could stay in the business.

Hearings have been set by FCC for early October, when AT&T will be opposed by other makers of the equipment, such as Philco, as well as the Justice Dept. If FCC does take on the regulation, the antitrusters may have to start a separate court test of the point raised by AT&T.

A Washington, (D. C.) grand jury has indicted four major sprinkler manufacturers—Rockwood Sprinkler, Grinnell, Automatic Sprinkler, and Blaw-Knox on antitrust charges.

• • •

Alberta's Social Credit Government Cuts a $20-a-Head Boom-Time Melon

Alberta's Social Credit party, which started in by promising cure-alls at the depth of the Depression, this week finally achieved one of its goals—at the height of a major boom. The right-wing party, in power as Alberta's provincial government since 1935, was paying out $20 dividends to a big batch of its citizens.

Anyone who can prove 10 years' residence in Alberta, two of them consecutive to the start of the dividend, is entitled to the money. The government set aside $11-million from its treasury—swollen with oil royalties—for the payments.

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West Germans Dicker for Iron Ore From Eaton's Ungava Bay Project

Northern Quebec's huge deposits of low-grade iron ore may become a principal supplier for West Germany's steel mills. Next week such a project will be discussed at a meeting of Cyrus Eaton, the Cleveland financier who has extensive exploration permits in the Ungava Bay area; Quebec Premier Maurice Duplessis, and Alfred Krupp, the German steelmaker.

European steel mills, unlike their U.S. counterparts, are interested in Quebec's low-grade ore, but the big problem is getting the ore out. If a Krupp-Eaton deal went through, it would be necessary to set up a pelletizing plant in Northern Quebec, where the only available port is ice-locked eight months of the year. **So the pellets would have to be rushed out during the short season to an ice-free port in Greenland,** whence they could be shipped to Europe on a year-round basis. Eaton people estimate it would take five years to get the ore moving.

• • •

Financing Is Tough, American Airlines Drops Out of Douglas Development Deal

Caught in the widespread financing squeeze, American Airlines this week notified Douglas Aircraft Co. that it would have to drop out of their joint plan to develop a new cargo plane, the DC-7D.

The notice came at a time when Sir William Hildred, director-general of the International Air Transport Assn., was publicly lamenting the financial vise that was gripping airlines all over the world. **He said that worldwide profit margins had dropped from an average 2.6% of gross in 1955 to a meager 1½% last year.**

Aviation sources said there was no doubt that American Airlines' $220-million plan to buy 30 Boeing 707s and 35 Lockheed Electra jets would run into the same financing problems that beset other lines (BW—Aug.10 '57,p34). But they also felt that American's withdrawal from the project with Douglas was aimed at supporting the lines' demand for fare increases—a demand that the Civil Aeronautics Board has rejected.

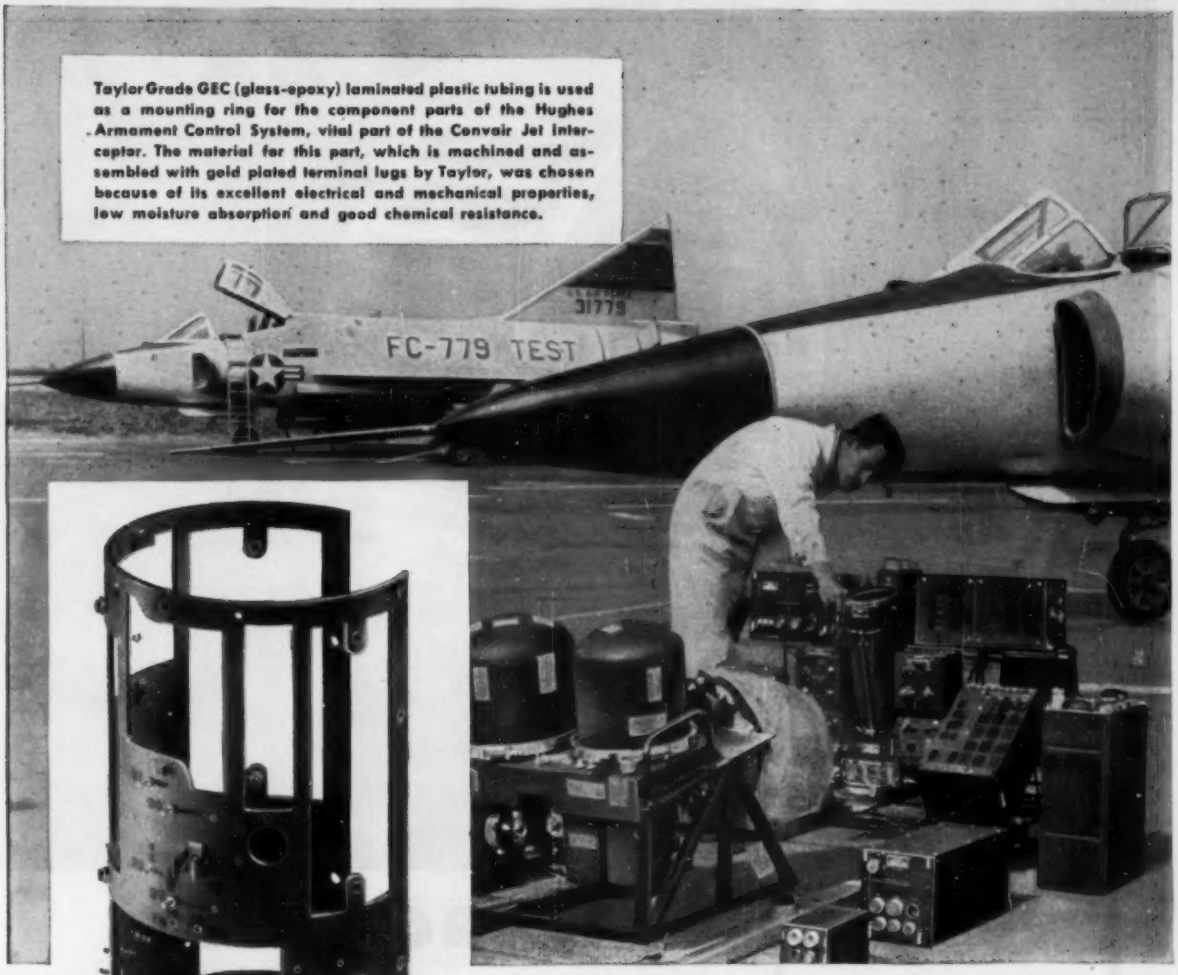
Another factor in the American decision is the difficulty it seems to be having in selling off its present fleet of Convairs. The line is trying to sell 10 Convair 240s now, and probably between 50 and 60 later. But trade sources say the bottom has dropped out of the second-hand plane market, and American will be lucky to get $175,000 apiece for the planes, instead of the $375,000 that it is asking.

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Business Briefs

Connecticut stockholders of strife-torn **Penn-Texas Corp.** have formed a new dissident group. They are demanding more data on recent board battling and attempts to oust Chmn. Leopold D. Silberstein (BW—Sep.7'57,p31). And director Robert C. Finkelstein, a dump-Silberstein leader, says his group may seek a court order for an independent audit of Penn-Texas affairs.

Subscription television, similar to the Bartlesville (Okla.) experiment (BW—Sep.7'57,p43), may come to Washington, D. C. The Washington Broadcasting Co., which runs a radio station, has asked the district commissioners for a closed-circuit license.



Taylor Grade GEC (glass-epoxy) laminated plastic tubing is used as a mounting ring for the component parts of the Hughes Armament Control System, vital part of the Convair Jet Interceptor. The material for this part, which is machined and assembled with gold plated terminal lugs by Taylor, was chosen because of its excellent electrical and mechanical properties, low moisture absorption and good chemical resistance.

Taylor laminate helps jets stay on target

All types of jet interceptors in the U.S. and Canadian Air Defense Commands are equipped with the Hughes airborne armament control system. The laminate used in this system was selected from a wide range of Taylor materials, one or more of which can serve well in your product... to meet your most exacting specifications . . . to bring you major savings in material, fabrication and assembly costs.

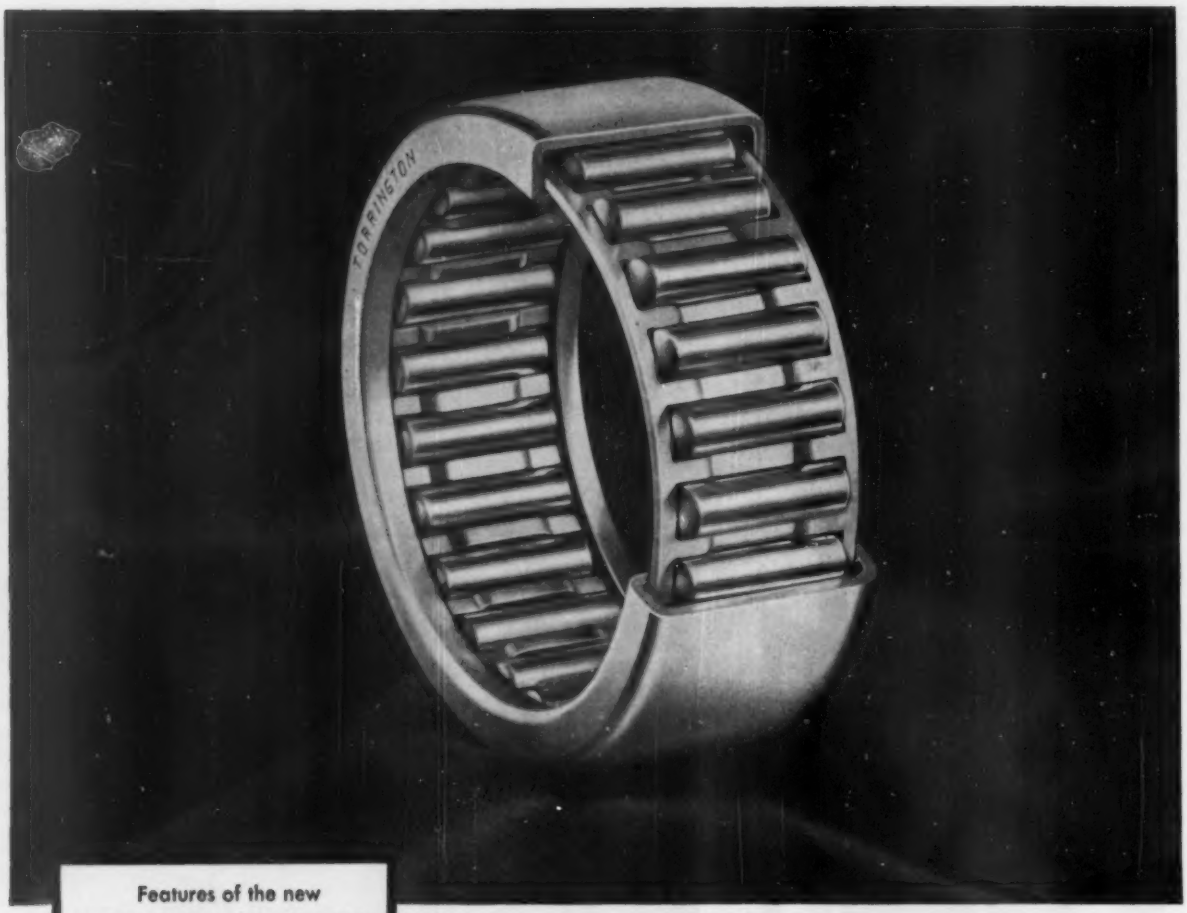
Taylor's plants, on both coasts, are fully integrated. This continuity of control, from resin manufacture to completion of materials and fabrication of parts, assures you of consistent top performance by Taylor laminates in your product.

Write or call Taylor for a discussion of your material and fabrication requirements . . . in terms of how we can serve you best.

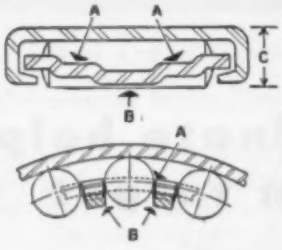
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Features of the new
TORRINGTON DRAWN CUP ROLLER BEARING



- rollers end-guided at pitch line (A)
- shaft-riding retainer (B) designed to permit lubricant circulation
- high capacity in small cross section (C)
- long pregreased life
- efficient at high speeds
- mounted by press fit
- simple housing design
- low unit cost

INTRODUCING

a new low-cost precision roller bearing...

THE TORRINGTON DRAWN CUP ROLLER BEARING

For the first time, the advantages of drawn cup outer race construction are available in a precision roller bearing.

This compact, lightweight bearing consists of spherical end needle rollers, a one-piece hardened steel retainer and case-hardened thin-section outer race. Designed to run on a hardened shaft or with an inner race, this new series takes a press fit in a simple housing without snap-rings or shoulders.

Highly efficient roller guidance and lubrication are outstanding features. The shaft-riding retainer contacts the roller ends at the pitch line where guidance can be obtained with the least effort. The design provides ample storage for lubricant and promotes its circulation.

These features make the new bearing particularly suited to applications requiring compactness with precision, high-speed endurance or long pregreased life.

For information on sizes now available and for application assistance, call on our Engineering Department or write for the new bulletin, "Torrington Drawn Cup Roller Bearings." THE TORRINGTON COMPANY, Torrington, Conn. – and South Bend, Ind.

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WASHINGTON OUTLOOK

WASHINGTON
BUREAU
SEPT. 14, 1957



Washington is making its real budget decisions now.

This may seem a little surprising. After all, Eisenhower told Congress in January that he wanted to spend $71.8-billion in this fiscal year—the year ending next June 30. Congress has since acted. It added a little here and there, but mostly it voted cuts in Eisenhower's program. But the plain fact is that Eisenhower will go ahead and set a peacetime spending record.

Here's what's going on:

Spending schedules for the agencies are being reviewed. And ceilings are being set on what this or that agency or department can spend during the current fiscal year.

A point to keep in mind: The fact that Congress has voted money for a program doesn't necessarily mean that the spending will be made. Congress authorizes spending. It doesn't order it. That leaves the White House with a great deal of discretion. Some spending is fixed—the interest on the national debt, veterans' benefits. The Administration must cover those claims. But on defense buying and many other items, the Administration has a great deal of leeway, with the Budget Bureau calling the turn.

Right now, there's a hard hold-down on spending. You don't have to look far for the reasons. Here are the two big ones:

The Administration will try to keep within the debt ceiling. For this year, it's back at the old $275-billion level. This cramps the Treasury. But the White House, warned by Sen. Byrd (D-Va.) and others that they would fight any new increase, is determined to live within the limit.

And the White House wants a tax cut next year. It isn't yet committed. But GOP politicians figure it is essential to avoid a Democratic walkaway in next year's Congressional elections. The White House, impressed by the political reasoning, has ordered the Budget Bureau to hold spending down where possible.

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Here's how the Budget Bureau is handling the job:

Quarterly allotments are being set up. What this means is that the agencies are being told how much they can spend in the upcoming three months' period. This leaves them in the dark on what they can do for the whole year. As a result, they are cautious on future commitments.

Complaints flood the Budget Bureau. The spending controls put the so-called bureaucrats on the spot—they can't project their programs for the whole year, even in cases where Congress has authorized what they want.

You will see the results in the budget review, due out in another week or 10 days. Some things to watch for:

The savings voted by Congress will show up. Leaders of the Democratic controlled House and Senate claim economies running over $5-billion. This, however, is on the long-pull basis, with most of the savings scheduled for future fiscal years. But savings this year may well reach $1-billion.

Savings ordered by Eisenhower also will show up. His veto of the pay increase for government workers will be followed by hold-downs in other areas. The White House feels it must cut just to stay even—because rising prices, increased freight rates, and higher pay in blue collar operations are putting pressure on the government's finances.

WASHINGTON BUREAU
SEPT. 14, 1957

Labor chieftains George Meany and Walter Reuther are feuding again. The dispute, over the tangent issue of foreign affairs, is affecting AFL-CIO headquarters drive on racketeering. The foreign affairs squabble is this: Meany favors a no-deal approach to Russia; Reuther has been speaking out with a more moderate stand. Meany had been scheduled to go abroad with Reuther to attend European labor conferences. But he canceled out, and Reuther went alone.

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Washington sees little change in the employment outlook, despite this week's Bureau of Labor Statistics report showing a 900,000 decline in employment for August. Statisticians say the drop is a result of the normal exodus of students and housewives from the labor force.

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Complaints of major defense contractors against procurement policies are piling up, accentuated by the Defense Dept.'s efforts to bring spending down to $38-billion. The National Security Industrial Assn., the trade association for defense contractors, is coming up with a report, due for release soon, cataloging the complaints.

Renegotiation is the major gripe. That isn't new. Manufacturers long have complained that the long process of going through company profits to come up with a final price for a plane or tank ties up working capital, takes too much time, as well as being basically unfair.

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Integration is building into a red hot political issue.

The Arkansas situation surprised Washington. The Justice Dept. anticipated troubles at the community level—in counties and towns. But it wasn't prepared in the Arkansas case, where the governor called out the National Guard to block integration orders of a federal court.

Then, there's the violence in other states—dynamite in Tennessee, beatings and rock-throwing in Alabama. Washington hadn't expected violence. Eisenhower hoped the courts would be able to set the pace of integration without the Attorney General being drawn into the controversy directly.

The GOP is hurt in the South. Such Republican members of the House as Jonas of North Carolina and Broyhill and Poff of Virginia can expect stronger Democratic opposition—and probably of the segregationist persuasion—when they come up for reelection next year.

Some Southern Democrats may be upset, too.

Southern Democratic leaders worked out the voting rights compromise. With the exception of Sen. Thurmond of South Carolina, the party members made no real effort to stop the legislation. You will see many of the old-time Southern representatives challenged in the primaries next year. Sens. Gore in Tennessee, Holland in Florida, and Stennis in Mississippi face renomination battles. But the real fight will come in the contests for Democratic nomination to the House.

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The issue isn't confined to the South. New York City is wrestling with the problem of whether to compel landlords to rent housing without regard to race. This will spread to other big cities in the North and East. It's the sort of emotional issue that can becloud politics for years to come.

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Inland waterways quadruple ton-miles in 10 years

Deeper channels, modern equipment, and bank credit spur comeback.

After serving as America's main roads since colonial days, our country's rivers began to "dry up" commercially. By 1920, they had hit rock bottom. Then came dredging of channels, improvements in equipment and service . . . and the greatest comeback in transportation history was launched.

Last year, traffic on 29,000 miles of rivers and canals passed 100 billion ton-miles, or 8% of all domestic inter-city freight. If Great Lakes shipments and harbor freight are added, this volume is more than doubled.

Heart of the waterway empire is the Mississippi and the great rivers like the Ohio which drain into it. Here, modern barges move coal, grain, oil, ore, chemicals, automobiles, and other bulk items. Twenty barges can form a tow carrying as much tonnage as an ocean freighter. Radar-guided towboats, all-steel barges, and modern loading equipment step up speeds, make schedules firm, and provide dollar-saving warehousing en route.

Some of the new equipment is financed by The First National City Bank of New York. Here, barge operators, builders, and shippers find *bankers* whose understanding of their problems is comprehensive – beyond traditional "balance-sheet" concepts.

These experienced *bankers* are members of the Bank's Transportation Department. Familiar with the factors that affect financing of waterway equipment, they can provide advice and counsel as well as credit.

Bankers at First National City have spent years studying your industry, too. They can bring to bear on your problems the Bank's unmatched world-wide facilities, resources of over $7 billion, and over 145 years' experience in financing American industry. The next time a money problem comes up, see your First National City *banker*.

The **FIRST**
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First in World Wide Banking
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CARRY FIRST NATIONAL CITY TRAVELERS CHECKS . . . SAFE . . . SPENDABLE ANYWHERE



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A finger's touch and milady has an invisible hair net. It's a common miracle used millions of times daily . . . made possible by an aerosol propellent based on fluorine, the "great improver."

Fluorine's ability to stabilize compounds has created numberless products . . . aerosol paints, insecticides, pharmaceuticals, plastics. Among new products owing stability to fluorine is Pennsalt's ISOTRON propellent, made in a new plant in Calvert City, Kentucky. ISOTRON is the secret behind milady's spray and many other aerosols. It is also the coolant for many refrigeration and air conditioning systems for industry and the home.

The improvement of products through chemistry is a major Pennsalt interest. If your product can benefit through chemical research write to Department 433 Pennsalt, today.

Pennsalt Chemicals

Three Penn Center, Philadelphia 2, Pa.

Since 1952, there has been a wide spread in sales gains chalked up by the various kinds of retailers . . .

Type of Retailer	1952 (Millions of Dollars)	1956 (Millions of Dollars)	Percent Gain
Gasoline Stations	$9,976	$13,738	37.7%
Automotive	28,337	36,122	27.5
Furniture	5,255	6,569	25.0
Liquor	3,165	3,941	24.5
Drug Store	4,717	5,775	22.4
Food	38,039	44,223	16.3
Variety Stores	2,996	3,422	14.2
General Merchandise	4,082	4,604	12.8
Eating and Drinking Places	12,688	14,317	12.8
Appliances, Radio-TV	3,671	4,098	11.6
Department Stores	10,277	11,327	10.2
Bldg. Materials, Hardware	10,200	11,205	9.9
Apparel	10,633	11,610	9.2
Mail Order (catalogue)	1,339	1,407	5.1
Other Retail Sales	16,978	17,369	2.3
ALL RETAIL STORES	**$162,353**	**$189,729**	**16.8%**

Source: Dept. of Commerce

. . . behind the gains were these shifts in the way consumers spent their income . . .

	1952	Percent of Total	1956	Percent of Total	Percent Change 1952-56
	(Millions of Dollars)				
Food, Liquor, Tobacco	$75,181	34.4%	$86,367	32.3%	14.9%
Household operation, including appliances	28,893	13.2	36,113	13.5	25.0
Housing	25,563	11.7	32,841	12.3	28.5
Transportation	23,234	10.6	30,314	11.4	30.5
Clothing, Accessories, and Jewelry	24,803	11.4	27,017	10.1	8.9
Recreation	11,374	5.2	13,844	5.2	21.7
Personal Business	9,380	4.3	13,968	5.2	48.9
Medical Care, Death Expenses	10,501	4.8	13,405	5.0	27.7
Religious and Welfare Activities	2,855	1.1	3,746	1.4	31.2
Personal Care	2,573	1.2	3,581	1.4	39.2
Private Education and Research	2,319	1.1	3,565	1.3	53.7
Foreign Travel and Net Remittances	1,652	0.8	2,399	0.9	45.2
TOTAL CONSUMER EXPENDITURES	**$218,328**		**$267,160**		**22.4%**

Data: Dept. of Commerce.

Spenders Outrun the Retailers

In five years of boom, stores have increased their sales by 16.8%, but the consumer has boosted his outgo by 22.4%. "Services" show the biggest gain from more spending.

FOR FIVE YEARS, there has been hardly a pause in the retail boom that has pushed consumer spending at stores from $162.3-billion in 1952 to $189.7-billion in 1956. This year, if the present 5%-6% sales gain continues through fall and winter, U.S. merchants will hit the $200-billion mark for the first time on record.

That's a massive pot of gold, and every retail group has been able to share in its growth to some degree. But along with all the pluses, you find some minuses both for retailing as a whole and for particular segments.

One thing the charts above make clear is that as a group retailers have failed to keep pace with consumers. Stores increased their sales 16.8%, at a time when consumers were spending 22.4% more than they did five years ago.

• **Services**—This reflects a steady rise in the sums that consumers have laid out for what the Commerce Dept. considers services. According to the department's latest Survey of Current Busi-

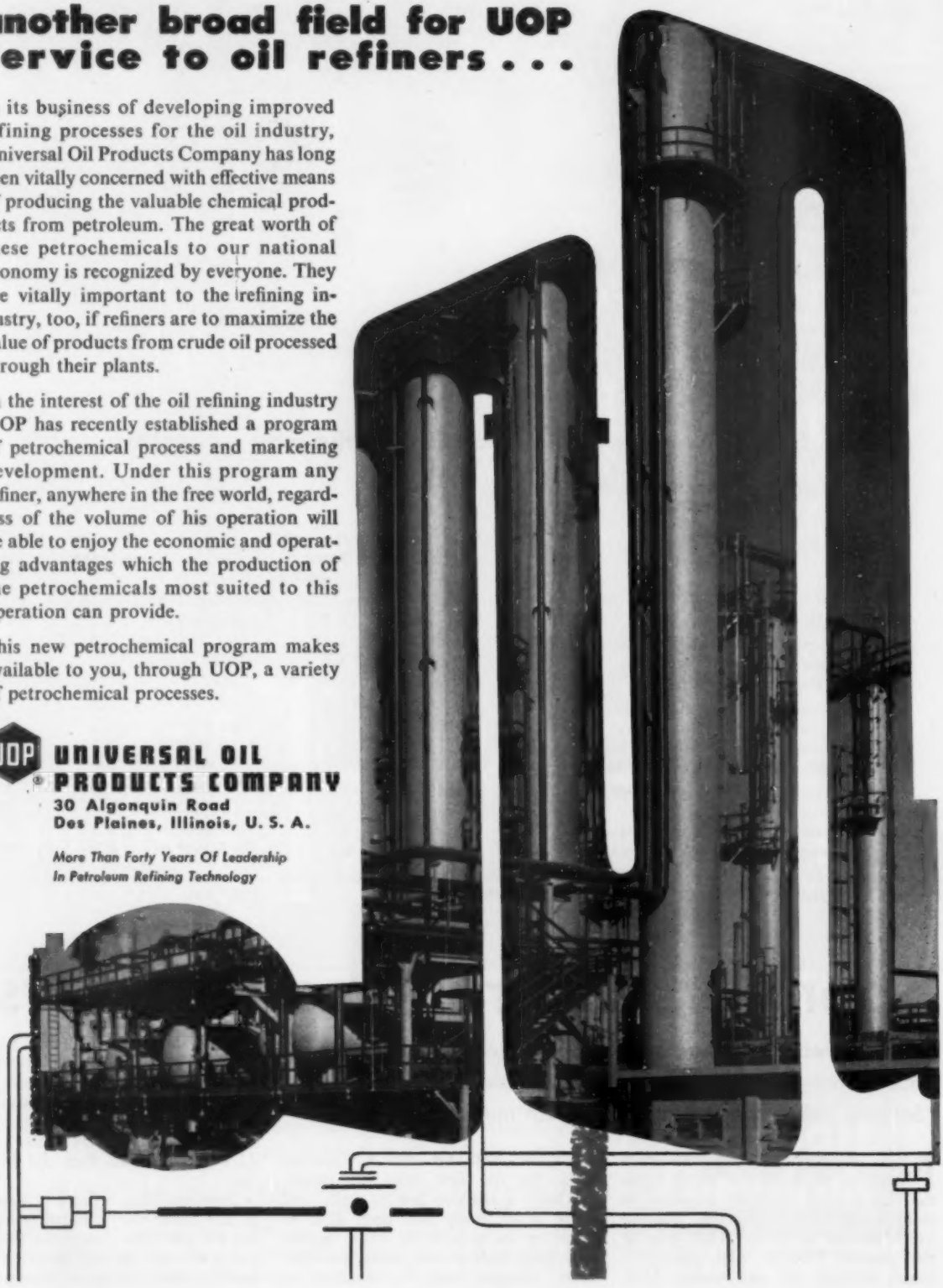
PETROCHEMICALS

another broad field for UOP service to oil refiners . . .

In its business of developing improved refining processes for the oil industry, Universal Oil Products Company has long been vitally concerned with effective means of producing the valuable chemical products from petroleum. The great worth of these petrochemicals to our national economy is recognized by everyone. They are vitally important to the refining industry, too, if refiners are to maximize the value of products from crude oil processed through their plants.

In the interest of the oil refining industry UOP has recently established a program of petrochemical process and marketing development. Under this program any refiner, anywhere in the free world, regardless of the volume of his operation will be able to enjoy the economic and operating advantages which the production of the petrochemicals most suited to this operation can provide.

This new petrochemical program makes available to you, through UOP, a variety of petrochemical processes.



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More Than Forty Years Of Leadership In Petroleum Refining Technology

How U.S. Retailers Split Up the Business

Type of Retailer	Percent of Total Retail Sales						Rank	
	1952	1953	1954	1955	1956	1957*	1952	1956
Food	23.4%	23.2%	23.7%	22.9%	23.3%	23.4%	1	1
Automotive	17.5	19.7	18.7	20.8	19.0	19.9	2	2
Eating & Drinking Places	7.8	7.7	7.8	7.4	7.6	7.4	3	3
Gasoline Stations	6.1	6.2	6.8	6.8	7.2	7.5	6	4
Apparel	6.6	6.1	6.0	5.9	6.1	6.0	4	5
Department Stores	6.3	6.1	6.1	5.9	6.0	5.7	5	6
Bldg. Materials, Hardware	6.3	6.2	6.0	6.0	5.9	5.3	5	7
Furniture	3.2	3.0	3.1	3.3	3.5	3.5	7	8
Drug Stores	2.9	2.8	2.9	2.8	3.0	3.0	8	9
General Merchandise	2.5	2.5	2.6	2.5	2.4	2.4	9	10
Appliances, Radio-TV	2.3	2.4	2.2	2.1	2.2	2.0	10	11
Liquor	2.0	2.0	2.0	1.9	2.1	2.1	11	12
Variety Stores	1.8	1.8	1.8	1.8	1.8	1.7	12	13
Mail Order (catalogue)	0.8	0.8	0.7	0.7	0.8	0.7	13	14
All other Retail Sales	10.5	9.5	9.6	9.2	9.1	9.4		
ALL RETAIL STORES	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**		

Source: Dept. of Commerce *First quarter

ness, the public spent 32% more for services last year than it did in 1952; for goods—both durable and nondurable—the rise in spending was only a little more than 17%. So far this year, that trend is continuing. It shows up most in:

• Personal finance expenditures, where, for example, interest on personal debt rose from $2.3-billion in 1952 to $3.8-billion last year.

• Personal care—with barber and beauty shops getting almost $2-billion of consumer spending in 1956 against a little over $1-billion five years ago.

• Private education and research—up from $2.3-billion to $3.5-billion.

• Foreign travel, which last year took $2.4-billion against $1.7-billion in 1952.

When you couple these gains in services with the shifts that have taken place within retailing itself, they become important factors in the merchants' competitive race for the consumer dollar.

• **Gas Stations Gain**—Only five retailing groups managed to equal or exceed the total percentage gain in consumer outlays. Heading the list were gasoline stations. As the table above shows, they jumped from sixth to fourth place in the retail rankings between 1952 and last year. This year, even though the figures show only returns for the first quarter when auto travel is at its lowest ebb, they are running in third place, ahead of both eating and drinking places.

This upsurge for gasoline stations naturally feeds on the big gains in the auto industry generally. Despite a couple of slips (in 1954 and again in 1956), the auto makers continued to take an ever greater share of the total retail dollar. The peak was in the record sales year of 1955 when autos accounted for 20.8% of retail sales. That was enough to cut the retail share of every group except one.

Since 1952, only furniture, liquor, and drug stores have been able to counter the impact of the automotive groups. In the case of liquor, continuing prosperity is undoubtedly the reason for its increasing share of spending. Drug stores were helped by the skyrocketing growth of antibiotics.

Food stores haven't gained a greater share of the market, although they still take the biggest bite of the consumer dollar spent at retail. This obscures the continuing growth of big supermarket chains, which today make up half of the list of 20 top retailers in the U. S. (BW—May11'57,p69).

• **Furniture**—It is the furniture group that showed the best performance next to autos. Since 1953, furniture stores have had a steady rise in their retail share—from 3% to 3.5%. Their 25% increase in sales ranked right behind the auto group. That increase has been continuing right through the housing slowdown and probably reflects:

• A return to the market of early postwar customers refurnishing their homes.

• The trend toward bigger houses as family size increases.

• An upgrading of consumer tastes (BW—May4'57,p62).

Stores the bulk of whose goods are wearing apparel have not been nearly so fortunate. Consumers spent only 8.9% of their money for clothing and jewelry in 1956 against 11.4% in 1952.

• **Department Stores**—Unquestionably, this accounts for the almost unbroken decline in the standing of department stores. Even with the regional shopping center boom which probably hit its peak in 1956, their share of the market has fallen to only 6%. It was 6.3% in 1952, better than 7% in 1948. The decline has reached the point where the Federal Reserve Bank of San Francisco found it wise recently to issue a warning that "the changing structure of retail trade outlets and of consumer buying preferences have reduced the value of department stores as indicators of total retail trade."

Actually, the tabulation above hints at some slowdown in the steady drop for department stores. This coincides with their expansion into suburbs, the results of which may not be evident until the end of the year.

• **New Angle**—But according to a recent study, the suburban expansion may not be the whole answer for department stores. In his book, The Changing Competitive Position of Department Stores (University of Pittsburgh Press, $5.95) Asst. Prof. R. D. Entenberg makes the point that the big stores haven't expanded their merchandise lines in keeping with consumer spending habits—an idea that the tables on page 43 certainly support.

In a detailed analysis covering the period from 1929 to 1953, Entenberg shows that department stores were able to improve their relative market position in 31 lines. But they lost position in the remaining 12 lines which they ordinarily carry. According to his figures, these 12 lines (among them tires, batteries, and accessories, paint and wallpaper, appliances) were "areas where tremendous volume potentials could be foreseen." He adds:

"These are the very lines that department stores have failed to expand." END

Who Decides: Man or Wife?

True magazine, plugging the male market, says husband picks brand in many family purchases —has survey to back it.



IT'S THE HUSBAND who makes the brand decision, according to a Starch survey for True magazine in covering automobiles and nine other consumer products.

THIS WEEK Fawcett Publications' True magazine—which bills itself as The Man's Magazine—is setting out to attack a theme that has become almost axiomatic along Madison Avenue: It's the woman who buys.

True is releasing what purports to be a reasonably scientific answer to the question: To sell a product, whom do you have to convince, husband or wife?

Obviously the answer often depends on what product you are selling, but it has been True's opinion all along that (1) the husband counts most in brand selection of a host of consumer products and (2) he is a big enough market influence to have his own special media.

• **Ammunition**—That's not a new idea. What's important is that True now thinks it has concrete evidence (largely acceptable to the Advertising Research Foundation) by which it can win advertisers over to its point of view.

It hired Daniel Starch & Staff to conduct a series of depth interviews with a sampling of some 100 families covering 10 products: automobiles, life insurance, air conditioners, shaving cream, beer, liquor, outboard motors, tires, business shirts, and air travel.

All of these are products that True thinks ought to be heavy advertisers to the predominantly male audience it serves, but for one reason or another haven't been. The first results that True is making public cover three products with obvious male appeal: beer, shaving cream, and business shirts. It expects to release its auto study soon.

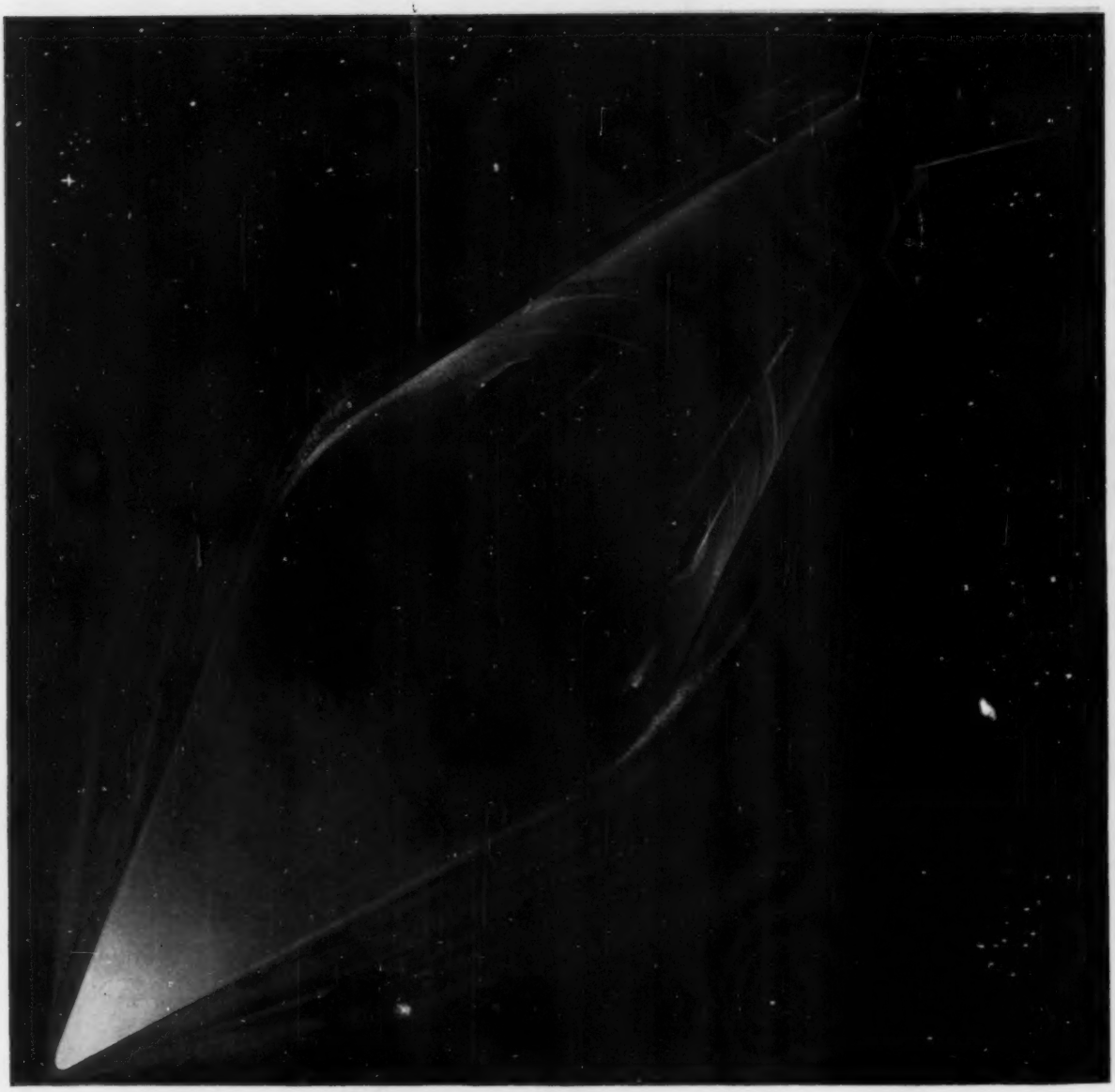
• **Husband's Choice**—Statistically, they tend to support the magazine's contention that for these products it is the husband who most often chooses:

• In the case of beer, husbands and wives in 57 out of 100 households agreed that the husband selects the brand. Only in 10 of the homes did the wives do so. Of the rest, 14 families said they had no brand choice, and eight made joint selections.

• Business shirts were chosen by the brand the husband named in 46% of the cases. Just 6% of the couples agreed that the wife made the brand selection. There was no brand choice in 37% of the homes and 11% of the couples disagreed on who selected.

• As for shaving cream, the results were perfectly clear—94% of the couples agreed the husband's brand choice was purchased.

These results—and the others that



Why it gets hot in there

Closely packed within the thin shell of a guided missile is a mass of electronic equipment. Crowded in so tightly, the tubes and other components scarcely have a chance to dissipate their own intense heat.

In addition, when the missile cuts the air at supersonic speeds, that thin shell builds up screaming heat—enough to wilt metal, to say nothing of the insulations that keep the electronic systems working.

Making electronic insulations that resist this murderous heat is one of the big projects going on today at CDF. A sixty-year reputation for highest-quality insulations makes CDF a major supplier to the guided-missile field—where half of a multi-billion-dollar budget goes into electronic equipment.

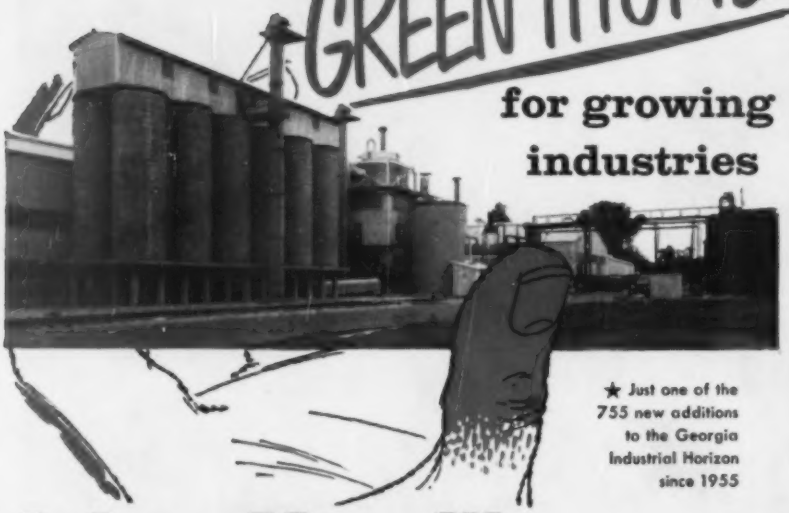
CDF products serve not only the electronic industry but also the aircraft, automotive, communications, and railway fields—in fact, wherever quality mechanical and electrical parts are needed.

Your product may well be improved through the engineering co-operation of CDF experts. CDF sales engineers are always ready to help you make good equipment even better.

CDF **CONTINENTAL-DIAMOND FIBRE**

A SUBSIDIARY OF THE Budd COMPANY • NEWARK 8, DEL.

GEORGIA'S got a GREEN THUMB for growing industries



★ Just one of the 755 new additions to the Georgia Industrial Horizon since 1955

Johns-Manville

proves that it's good business to produce in GEORGIA

"... The continued increase in demand for Johns-Manville Building Products in the Southeast, pointed to Georgia as an ideal location for a new manufacturing site for asphalt shingles and roofing."
"... Our business development in Georgia has been made possible by the continued helpful and enlightened attitude of local and state officials, legislators and our neighbors in the communities in which we operate ..."

A. R. Fisher
President

Ingredients for Growth

- Versatile Labor Supply
- Transportation Unlimited
- Abundant Water, Fuel, Power
- Nearby Raw Materials
- Nearby Consumer Markets
- Fair, Equitable Taxes

Yes... the grass IS greener in Georgia

GEORGIA
Department of Commerce
Scott Candler, Secretary
100 State Capitol, Atlanta, Ga.

For Specific Facts and Figures Write
Scott Candler, Sec'y., Dept. D-7
Georgia Department of Commerce
100 State Capitol, Atlanta, Georgia

Name_____
Address_____
City_____ State_____

will be coming along—are the ammunition that True plans to use to accomplish what most publishers will agree is a formidable task: to cut out a profitable, permanent place for itself as a big, mass medium while, at the same time, directing its editorial appeal to a special audience.

• **New Departure**—It's been done before—but not with what True calls the male market. After World War I, the women's magazine field made huge strides, probably because of the emancipation of the female. The post-World War II era saw the spectacular growth of the shelter magazines. And, to a large extent, the mass weeklies such as Life and Look have prospered by appealing more and more to women.

This has never been the case with magazines that studiously ignored the woman. There have been periodicals like Esquire and the latest phenomenon, Playboy, but they have never broken out of the under-million circulation class—despite their success in sex appeal.

True's more or less direct competitors—Argosy, Outdoor Life, Field & Stream, and Sports Afield—have largely been content with a small piece of the male market.

• **Challenging the Big Ones**—But right now True's circulation of more than 2¼-million puts it in a class outside the range of ordinary special-audience magazines and heads it into the area of intense competition of the big-circulation group—Life, Look, the shelter magazines such as Better Homes & Gardens, and the women's service magazines such as McCall's. Here circulation figures range from 4-million up.

Once you get near that class—and True's editorial executives are now talking in terms of a circulation maximum up to perhaps 5-million—it takes a hefty wad of advertising dollars to stay alive. Colliers, for instance, folded at a time when its circulation was more than 4-million because, as one advertising agency executive put it: "It couldn't prove that it was effective" (BW—Jan.19'57,p89).

This explains why True, although its circulation is well above the magic 1-million mark, has to convince advertisers and agencies that there really is something called the male market—and that it amounts to more than hunting and fishing supplies and gadgets.

It isn't hard to understand why advertisers in the mass media see appeal to women as one of their main goals. For one thing, they are bombarded by high-powered promotions like McCall's "togetherness" and the Ladies Home Journal's "never underestimate the power of a woman." In its latest promotion piece, McCall's quotes Advertising Age's James D. Woolf as saying of the wife: "She and not the husband

ANY PACKAGE THAT NEEDS KRAFT DESERVES

Your packages ought to be designed and made with the same pride as the products you manufacture or market. Let FROSTKRAFT help you solve packaging problems—with custom-built bags and containers made from the finest 100% kraft paper produced anywhere!

• *corrugated containers* • *multiwall shipping sacks* • *standard and specialty bags*

FROSTKRAFT IS A TRADE MARK



Forest Products Division

OLIN MATHIESON CHEMICAL CORPORATION

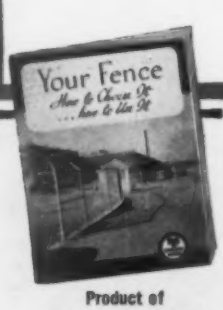
West Monroe, Louisiana



"MAYBE THIS TWO STAGE ROCKET WILL GET YOU OVER THE FENCE"

Thieves and vandals will go to any amount of trouble to avoid contact with the tough impenetrable mesh and the sharp pointed barbs of Cyclone Fence. That's why Cyclone is the world's most popular property protection fence. And in addition to protecting property from intruders, it regulates the coming and going of employees and visitors, forcing them to use designated entrances and exits.

Cyclone manufactures and installs many different styles of fence, making it easy to select the type of protection your property requires. Write for a free copy of our booklet about fence. Use the coupon below.



Product of United States Steel ... accept no substitute.

USS CYCLONE FENCE
Dept. 4-97, Waukegan, Ill.

Send free Cyclone Fence booklet.

Name .....
Address .....
City ..... Zone.... State.....

UNITED STATES STEEL

is the family purchasing agent; she is the buyer of practically everything that pertains to the family's needs. . . ."

The female influence shows up in other ways. In television, audience measurements show a predominant female audience, and women readers of mass publications consistently top men. The continued success of women's magazines and the shelter magazines are good indicators that Madison Avenue is wedded to the female.

• **Timing**—It's this general attitude that True is out to upset if it can. It doesn't argue about who buys the products, but insists that when a woman goes into a supermarket and picks up a six-pack of beer she is buying the brand her husband tells her to.

Fawcett's top management thinks it is timing True's big push at a turning point—what it fondly hopes is the end of the women's trend.

As editor Douglas S. Kennedy puts it: "If McCall's can sell 'togetherness,' we can sell apartness. We spent $25,000 to find out from research that what we ought to sell is a male sanctuary."

True's idea is that there is almost as big an audience for a magazine geared to men as there is for one for women.

Fawcett ad director James B. Boynton and True's ad manager, John E. Miller, think a few things are in their favor. One is a growing amount of leisure time for men. Another is their belief that the battle among the big magazines—and TV—for the female's attention leaves an opening that no one yet has successfully filled in a big way.

If you ask True's executives, they'll tell you they already have the formula that works. The magazine cites these growth figures: circulation up from 1.8-million in 1954 to 2.3-million in 1957; revenue from $1.3-million in first-half 1954 to $1.6-million in 1957.

In the last 18 months—coinciding to some extent with a number of top management changes—True has come steadily ahead. For the first half of 1957, it ranked fifth (behind TV Guide, Reader's Digest, Sports Illustrated, and Coronet) in advertising space gains. Revenue was up 38%—among the best gains of all media.

• **Upgrading**—Editorially, it is going to continue the upgrading of its content that started during the war with the dropping of sex-and-sadism covers.

Today it retains its claim to its title by printing only factual material, but is pulling better known authors between its covers, and has started a business beat—"there is romance in the businessman who is successful," says Kennedy.

This push toward quality—both in the way the magazine looks and in its contents—may be just as important as the buying influence promotion in True's attempt to prove there is a mass male market advertisers must tap. **END**

"I know I need more Life Insurance, but *how can I afford it?*"

HAVE you ever had this thought? Have you ever wondered how your wife could keep the family together if something should happen to you? This question faces most men while their children are growing up.

We believe that you will find the answer to this question in the Metropolitan Family Income Plan. This plan is designed to furnish the extra income needed to take care of your children until they have finished their education or are getting started in life. The plan combines regular insurance with a special income provision which can be fitted to your particular circumstances and family needs. Here are some of its important features:

1. You choose the amount of monthly income needed—$100 a month, $200, $300 or more.

2. If you should die at any time within 20 years—while your children are growing up—the Metropolitan Family Income Plan will provide the income you arrange to be paid to your family each month for the remainder of the 20 years. Then the face amount of the policy will be paid in cash.

3. If you should live beyond the 20 years, when the income provision is no longer in effect, your family will still have continuing protection for the face amount of the policy.

For your own peace of mind, why not get the complete details of the Family Income Plan from your Metropolitan Representative? He will be more than happy to explain it to you, and demonstrate that . . .

Metropolitan service is as local as Main Street . . . as close as your phone



Metropolitan Life Insurance Company

(A MUTUAL COMPANY)

1 MADISON AVENUE, NEW YORK 10, N. Y.

COPYRIGHT 1957—METROPOLITAN LIFE INSURANCE COMPANY

Euclids Move the Earth ...ore, rock, coal and logs, too!



MINES & QUARRIES depend on "Eucs" to move big loads on tough hauls because they're designed and built for this heavy duty work.



DAMS, both earthfill and concrete, involve tremendous yardages of excavation that must be moved . . . earth, rock, aggregate etc. "Eucs" have worked on practically every major dam built during the past 25 years.



HIGHWAYS are built with modern earthmovers like this Twin-Power all-wheel drive scraper that has 2 engines for a total of 518 h.p. and a payload capacity of 32 cu. yds.



LOGGING requires equipment that can move big loads on long, difficult hauls at low cost.

WHEREVER large tonnages of material must be moved in mine, quarry and heavy construction work, the chances are good that Euclid equipment is doing the job. Built to carry off-highway payloads of 10 to 50 tons, "Eucs" are speeding the construction of our new roads . . . dams that prevent floods and provide power . . . airports, railroad relocations and plant sites.

They are helping to step up production and cut costs in open-pit mines and quarries . . . in logging . . . and on many industrial operations. All over the world, on all kinds of jobs, Euclids are moving big loads at lowest cost.

If heavy earth moving equipment is used in your operations, we'll be glad to put you in touch with the Euclid dealer in your territory so you'll have complete information on the types and models that meet your specific needs. He can show you why ***Euclids are your best equipment investment.***

GM GENERAL MOTORS EUCLID

EUCLID DIVISION

GENERAL MOTORS CORPORATION

Cleveland 17, Ohio

Pioneer in off-highway earthmoving equipment

In Marketing

• • •

Two Major Supermarket Chains Pull in Their Horns a Little Bit

Two of the country's leading supermarket chains have whittled down their trading areas a bit. Kroger Co., Cincinnati, the third largest food chain, is withdrawing from Kansas by selling its 16 stores there to J. S. Dillon & Sons, food chain of Hutchinson, Kan., and Food Fair Stores, Inc., Philadelphia, which ranks seventh among supermarket chains, has sold all its property in Georgia and Tennessee to Colonial Stores, Atlanta.

Both Kroger and Food Fair ascribed the sales to the fact that in both instances the stores did not fit in with each chain's over-all expansion plans.

Kroger Pres. Joseph B. Hall, pointing out that the Wichita area, where most of the stores are located, "is relatively isolated for Kroger operations," declared the growth potential in that area "did not appear to be large enough to justify the investment of management time and effort required to operate the stores in keeping with Kroger standards."

Louis Stein, president of Food Fair, says that the Georgia and Tennessee stores "just didn't fit in with our development program. **Food Fair's program to expand on the west coast of Florida and in Virginia gained such momentum after initial beginnings that we felt it better to spend our money and efforts there."**

Food Fair went into Georgia and Tennessee only last summer when it purchased two stores in each state. The idea was to establish a foothold as the chain grew southward from Virginia and north from Florida. Stein insists that fast-growing Food Fair's switch is just a postponement while other states are being developed.

• • •

Philadelphia's Biggest Discount House Proudly Labels Itself "Department Store"

The Philadelphia area's newest and largest discount house, the Springfield branch of E. J. Korvette, Inc., New York, is drawing big crowds and having an impact on other retailers in and around the city.

Korvette launched its new branch two weeks ago with heavy newspaper advertising. The store is further aided by the attraction of novelty. Discount houses are nothing new to Philadelphia, but most of the city's discounters are small operators specializing in such merchandise as luggage and jewelry, crowded into small quarters with little room for display.

Korvette ambitiously calls its new branch a department store, though its 106,000 sq. ft. of floor space is below the average for department stores in Philadelphia. In any event, it has filled its 1,400-car parking lot steadily since opening day.

Department stores some 10 miles away in downtown Philadelphia say they are not worried about the new store. One store official, however, admits Korvette is doing a fine business in goods like records, cameras, and small appliances.

Smaller retailers are outspoken. The owner of a suburban camera shop typically says that though Korvette is nearly 10 miles from his shop, he has scarcely sold a roll of film since it opened.

Novelty or not, Korvette is scheduled to dig deeper into the Philadelphia market. By the middle of next year it will open a second branch, this time within the city limits.

• • •

Foreign Competition Forces Sale Of a White Sewing Machine Plant

White Sewing Machine Corp., long hurting from competition by cheaper foreign-made machines, pulled in its horns last week. It announced definite plans for auctioning off its main plant and equipment in Cleveland in October, and restated vaguer plans for assembling foreign-made parts in this country. **Meanwhile, the company is moving its much curtailed sewing machine production to another plant.**

What happened to White was that Sears, Roebuck & Co., for which it had been making a private-brand sewing machine model, turned to cheaper imported machines. Conceivably, White might have circumvented this by setting up its own production facilities overseas but chose not, say outsiders.

This month Singer Sewing Machine Co. is launching a big advertising campaign to push its new Slant-O-Matic model. Network TV shows and magazine color spreads will highlight the ad drive.

• • •

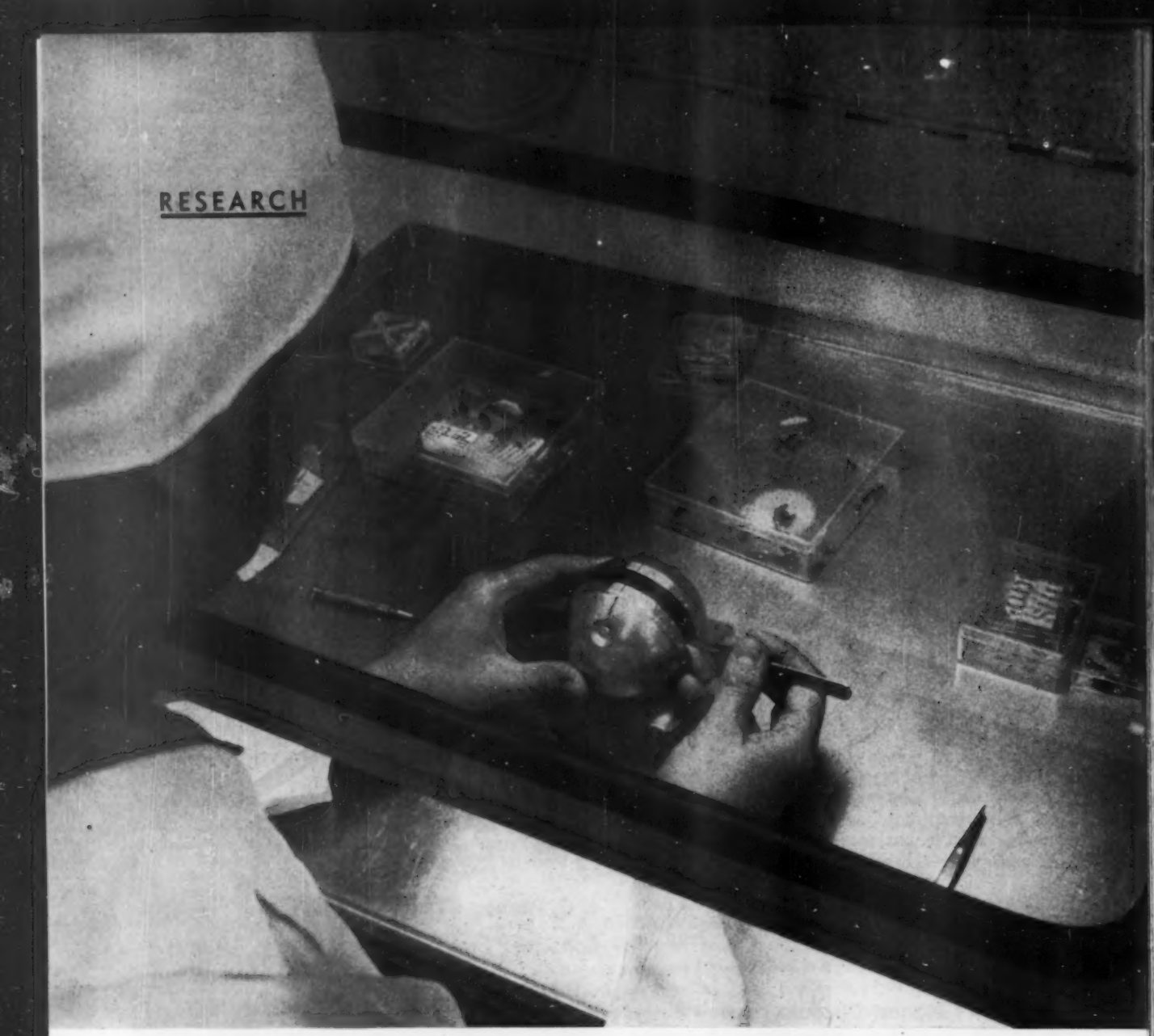
J. C. Penney Plans to Try Out Consumer Credit in a Few Stores

J. C. Penney Co., nation's fifth largest retailer, which has operated on a cash basis ever since its founding in 1902, plans to test consumer credit after the first of the year. A. W. Hughes, Penney president, stresses that initially credit will be used in only a few of the chain's 1,700 units on an experimental basis.

Penney has not decided what type of consumer credit it will employ. It has been studying the various forms of credit now in use in retailing, such as 30-day accounts, open accounts, revolving credit, and coupon books.

The big chain, which has stores in every state, has moved slowly. Other variety and junior department store chains like J. J. Newberry Co., F. W. Woolworth Co., and W. T. Grant Co. are already trying out credit in their stores.

Various factors influence the move to test consumer credit. Penney, like other chains, has been upgrading its merchandise line, adding bigger ticket items, especially in its larger stores. This trend to selling more costly goods brings greater demand for credit. **Also, the chain hopes to appeal to the younger married group, which uses credit extensively.**



Brain to Guide an ICBM Gets Its

Gyros floating in this ball will help give Titan's brain a pinpoint aim—which Arma's labs are working hard to sharpen.

THE GADGET that looks like a softball in the researcher's hands above is a key part of the answer to what is perhaps the biggest question in the U. S. drive to build an intercontinental ballistic missile.

The problem is this:

Suppose you are standing at Cape Canaveral, Fla., beside a missile—a complex assembly of some of the most expensive hardware made by man. Maybe 10 stories high it will soar several hundred miles up into space, hit speeds up to 18,000 miles an hour, and have a range of 5,000 miles or more. It may carry a hydrogen bomb in its warhead.

Your problem now: how to direct it so that the warhead travels 5,000 miles—and lands within a reasonable distance, say five miles, of its target?

• **Not the Same**—The problem is something like that of aiming a gun in that you can tilt the "muzzle" of the rocket launcher to put the missile on the trajectory that you calculate in advance it should follow. And you can move it right or left to send the missile off on approximately the compass course you desire.

But the problem is different from aiming a gun in that you have a chance to control your guided missile for about half its flight—until the missile's engine cuts out. By that time, the successive stages of the rocket engines will have carried it to a high speed, and probably to its peak altitude. When the last engine cuts out, and the last power stage cuts off, the warhead may be some thousands of miles out, traveling at something like 18,000 miles an hour. From there on, your ashcan in the sky will be "falling free"—it will be propelled only by its own fantastic momen-

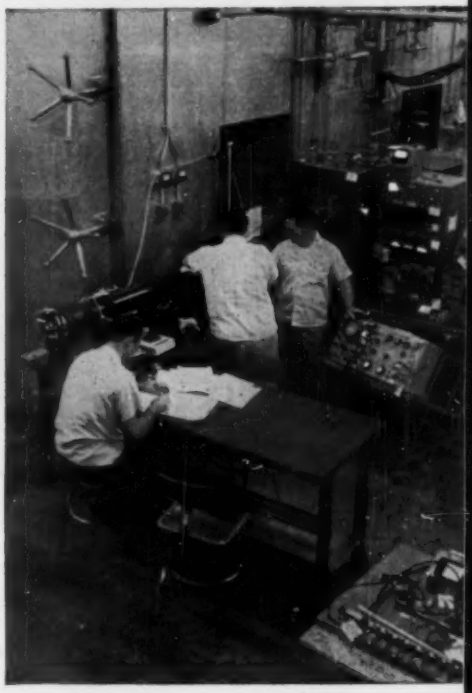




BALANCE is vital for gyros that provide base of inertial guidance system for an ICBM; in Arma's Spatial Labs, balancing is done in air 30 times purer than a mountain top.



VIBRATION conditions that system will meet in space are reproduced on devices like this.

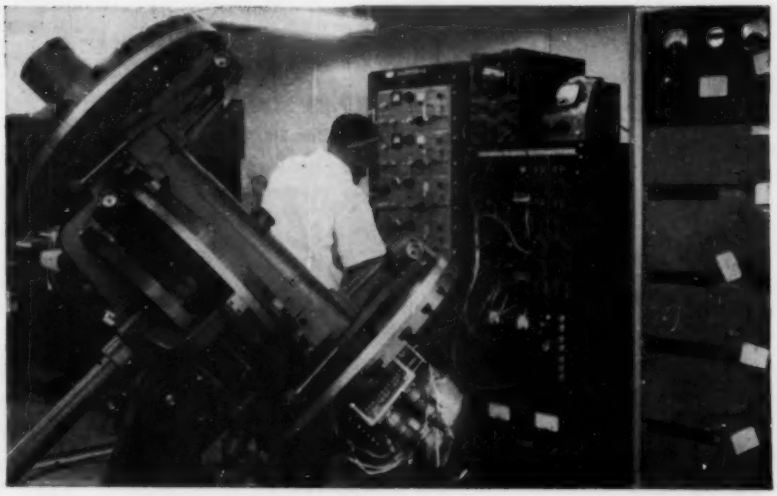


CLIMATE along ICBM's path will change rapidly; test equipment reproduces variations.

I. Q. Tested

tum and it will be pulled down by the force of gravity.

• **Tricky**—You will have some terribly tricky variables to allow for. The wind may push the missile off course as it rises from the launching stand. Variations in the thrust of the motor could cause it to fall hundreds of miles short of target. Even variations in the pull of gravity on its long flight will be enough to cause it to miss. The very fact that the earth is rotating and so



EARTH'S MOTION is canceled out in tests by devices aligned with North Star.

Here's How Free Daylight Is Saving One Company $58,023.00



SEND FOR YOUR FREE COPY

This lighting cost analysis by an independent consulting engineer reveals the money actually being saved in one metal building through the use of Corrulux daylighting panels in place of artificial lighting. Comparative costs of both methods are projected over a ten-year period, indicating a savings with Corrulux, of over $58,000.00.

Similar savings are possible in your construction picture.

Write for your copy of this important analysis today. **On your letterhead, please.**

L·O·F GLASS FIBERS Corrulux

Corrulux®

L·O·F GLASS FIBERS COMPANY

Dept. X • P. O. Box 20026, Houston 25, Texas



Jamar-Olmen Building
Houston, Texas



COMPUTER system for ICBM's guidance fits into box the size of a suitcase.

tends to deflect the missile has to be allowed for.

All these things mean that most of the guidance mechanisms you think of won't work. You can't control the missile by radio, for example, because high frequency radio wave can't bend around the curvature of the earth, and others can be jammed. Taking a sight on the stars, the way a ship's navigator might, is ruled out by weather.

Finally, you can't expect the missile to find its way to the target by some homing device that would lead it to a radio station or attract it to the center of a major city by the heat given off by that city. Aside from the technical problems such systems involve, they could all be jammed or nullified by an alert enemy.

• **Answer**—What looks like the best answer at the moment is the gadget shown in the pictures on pages 54-55—an inertial guidance system.

An inertial guidance system is the brain of a missile. You have to give the missile only two points of reference: You tell it the location of the spot on the face of the earth from which it will be fired. And you give it the location of that point in space at which the engine will cut out. Besides that, you have to tell it how fast it should be going—and in what direction—when it reaches that gateway in space.

The guidance system will bring the missile to that point far more accurately than a man can fire a rifle. In effect, it will "put a rifle bullet through the hole in a doughnut hung in the clouds," as one missile man put it.

• **On Its Own**—Moreover, an inertial guidance system will do all this without any contact whatsoever with the earth. This means that—as of now and



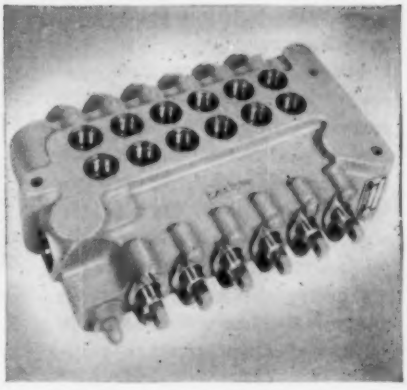
Small boy, big shadow

One small idea, fed by imaginative design engineers, often looms as a giant improvement in the hydraulics field.

Example: Our Industrial Hydraulics Division, Cleveland, makes this six-spool hydraulic directional control valve for lift trucks, earth movers and other heavy mobile equipment. Open-minded "fluid thinking", contributed by Parker engineers, now gives the operator feather-tip control of six-way functioning. He can lift gently, stop quickly, position accurately . . . meter power minutely.

Parker specializes in hydraulic and other fluid system components . . . tube and hose fittings, synthetic rubber O-rings and other precise sealing devices, highly engineered valves and related intricate units . . . for the aircraft, mobile equipment, metalworking, automotive, chemical and many other industries.

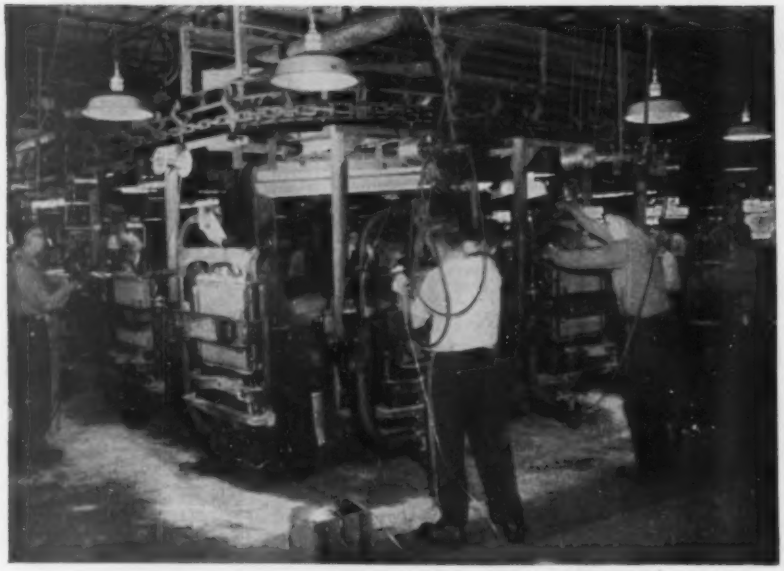
If your company is seeking a dependable source for components resulting from "fluid thinking" leadership, why not call us in. The Parker Appliance Company, Cleveland 12, Ohio, and its subsidiary, Parker Aircraft Co., Los Angeles 45, California.



Parker

Hydraulic and fluid system components

Parker operates 8 divisions — with plants in Cleveland and Eaton, Ohio • Berea, Ky. • Los Angeles, Culver City and Inglewood, Cal. (129 distributors in industrial centers)



Operators need not move from their stations. Each has its own soldering torch. Reel of solder and bottle of flux are on each carrier. (Photos Courtesy Fedders-Quigan Corporation)

MHS Monoveyor makes more room *where there was no more room*

A change in automobile radiator design made production more complicated. An increase in the number of operations and operators seemed to demand more room for the production line.

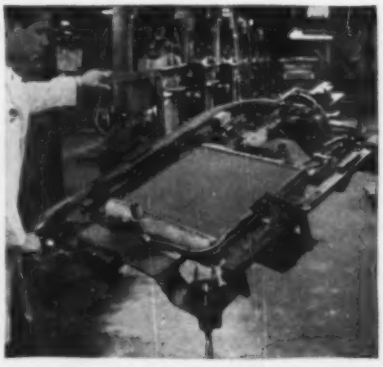
But there wasn't any more room in the supplier's plant!

So MHS designed a production line that is extremely adaptable, providing room for many more operations without increasing overall space.

It's a Monoveyor merry-go-round, with special carriers that index to present the work in any desired position. Operators work on both sides of the line, performing 20 operations in swift succession as the radiator travels the 90-foot circuit in 2¼ minutes.

The installation is so flexible that minor changes will adapt it to meet demands of model redesign.

MHS production systems, specially engineered, have saved time, money and space in a wide variety of plants with similar problems. Check the possibilities for *your* plant with an MHS engineer now.



Close-up of mounting device on carriers. Radiators index to any desired position.

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for some time to come—there should be no way at all of interfering with a guided missile operating on such a guidance system. Once launched, it is all on its own.

• **Looking Forward**—The guidance system, once it takes off, has no contact with the world outside the missile. It needs to know where it is—but it can't look outside to find out. It could figure out where it was if it knew how fast it had been going and for how long. But without looking outside it can't tell how fast it's going.

There is one thing, though, that the guidance system, isolated inside the missile, can detect. It can tell when the missile speeds up or slows down—just as the passenger in an elevator can tell when it starts or stops—and in what direction it is changing speed.

• **Brain**—With this information, an inertial guidance system functions for a missile just the way a brain functions for a human on the basis of the information furnished by the senses. It tells the missile (1) how far it has come and (2) in what direction.

The "brain" has been told in advance where it ought to be. So (3) it compares how much, if any, the missile has drifted off the track it should be following. And (4) it figures out what to do to get back on course—what adjustments to make to rudders or motors.

• **Mechanism**—The measuring, or "sensing," device that the inertial guidance system uses to get the information it needs is an instrument called an accelerometer. This senses every acceleration, every speeding up or slowing down of the missile in any direction—and measures the rate of change in velocity. Knowing how long these accelerations last, and how rapid the speedup or slowdown is, it can figure out its own speed and direction.

But the accelerometer by itself can't do the whole guidance job. It is only one of the three key parts that any inertial guidance system needs. It couldn't operate without supersensitive gyroscopes (pictures, page 55) to give the system a base point—a fixed reference from which to measure variations. And the guidance system would be merely an intellectual exercise without computers and integrators to take the information from the gyro and accelerometer and convert it into actual guidance directions for the missile.

• **Super-Precision**—Such inertial guidance systems have been used on both airplanes and ships (BW—Jun.8'57, p195). But to create one with sufficient precision built into it to steer an intercontinental ballistic missile unerringly to a target 5,000 miles away raises a whole new set of problems.

Scientists working on the problem are convinced that it's perfectly pos-



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Photo courtesy of the New Jersey Rubber Company, Taunton, Mass.

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The first steps in the development of a synthetic shoe sole were taken in the early 1930's. It was introduced commercially shortly after World War II. Since that time, this lightweight, waterproof, long-wearing blend of synthetic rubber and resin has grown in acceptance to where it is now used on just about 65% of all shoes of all types produced in these United States. And its use is still spreading.

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sible to turn out component parts that will satisfy the precision demands of the ICBM. The only practical block up to now, they say, has been in instrumentation manufacturing techniques.

That's why Arma Div. of American Bosch Arma Corp.—which has a contract for research and development on an inertial guidance system for the Air Force's Titan intercontinental missile—laid out $2.25-million to build its seven-part Spatial Laboratories at Roosevelt Field, Long Island (pictures, pages 54-55).

• **On the Way**—Scientists at the Spatial Labs are well on the way to solving the knotty problems of ICBM guidance. Though the exact date on which Arma will start regular deliveries of an inertial guidance system for the Titan remains cloaked in military secrecy, there's little doubt that it's only a matter of months now.

Arma, of course, is not the only company involved in research on long-range missile guidance. General Motors' AC Spark Plug Div. holds the contract in connection with the Atlas—the other ICBM that the Air Force tried unsuccessfully to fire last June but that flopped because of motor failure. General Electric and the Massachusetts Institute of Technology, among others, are working up a system for the Navy's new intermediate range Polaris. (The Snark and Navaho plans called for hybrid systems combining inertial guidance with celestial navigation, or sighting on the stars.)

All these inertial guidance systems won't operate in exactly the same way, and just how Arma's accelerometers, gyros, and computers will be constructed and will mesh together is shrouded in secrecy.

• **Requirements**—Gyros and accelerometers as navigation aids are, of course, nothing new—gyros have been a part of navigation equipment for years. But compared to the precision required for an ICBM, the gyros used for manned aircraft navigation systems, or even for automatic pilots, are crude affairs.

• An ICBM's gyros, though subjected to almost fantastic environmental conditions, must hold their stability in the face of radical temperatures, humidity, unearthly vibrations, unexpected shock. Otherwise the accelerometers will get false information and send the missile off course.

• Similarly, the accelerometers will have an unprecedented task in sensing correctly the changes of direction. Vibration, shock, and violent changes of speed will make their job far more difficult than the relatively simple measurement of direction changes on land or water.

• The computers, as the missile soars hundreds of miles into space, will have to cancel out the earth's rotation



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Hi-Ti titanium aircraft bolts have the strength of steel, weigh 43% less

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For more information on Hi-Ti fasteners, contact Aircraft Products Division, STANDARD PRESSED STEEL CO., Jenkintown 57, Pa.

COMPARISON OF TYPICAL MECHANICAL PROPERTIES

	Steel	Hi-Ti
Relative weight	1.00	0.57
*Tensile strength (psi)	174,500	169,000
*Tensile strength-to-weight ratio	174,500	295,750
Fatigue strength (psi) at 8,000,000 cycles (with 10% preload)	40,000	50,000
Strength-to-weight ratio at peak strength	40,000	87,500
*Elongation (%)	15.6	16.9
*Reduction in area (%)	56.6	36.5

*Based on .357 gage specimen made from bolts

Hi-Ti vs. alloy steel. Significant comparison is strength-to-weight ratio at endurance limit. Complete tension-tension charts are included with each Hi-Ti shipment.

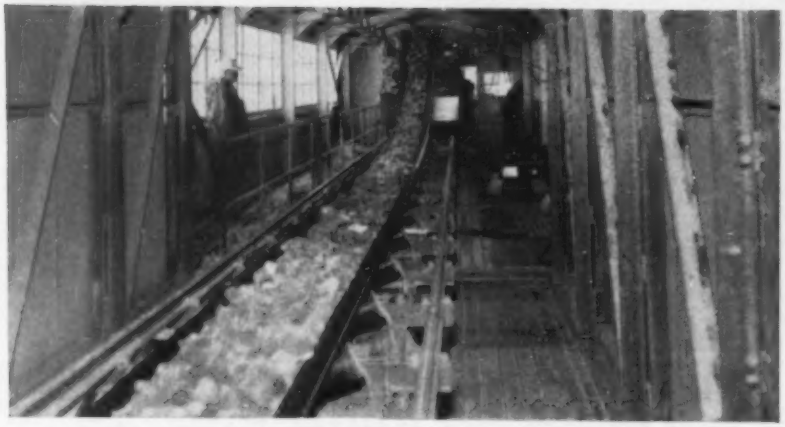
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CONVEYORS...LOADERS...DITCHERS...ASPHALT PAVING EQUIPMENT

from the calculations—because no gyroscope, by itself can tell the difference between the earth's rotation relative to the missile and the missile's rotation around the earth.

• **Complete**—To prepare the Titan's guidance system for its space-defying task, Arma's seven-part Spatial Labs offer perhaps the most complete space laboratory facilities in the U.S. today. Here's what these seven separate labs are doing to develop the Titan's brain:

• A gyro evaluation laboratory sets up the actual conditions of outer space for development and testing of precision inertial gyros in the environment in which they will have to work. It permits study of as many as 26 gyros on an uninterrupted 24-hour, 7-day schedule.

• An environmental lab tests inertial guidance components to determine their responses to all combinations of environment they may encounter on their spatial journeys.

• A precision or controlled-atmosphere lab has stringent controls on lint, dust, dirt, vibration, temperature, humidity, and pressure that rival those of the most modern hospital operating room. In this lab, test instruments, exact to the millionth of an inch, are hermetically sealed.

• A prototype lab turns out both mechanical and electrical models of all components to be tested for use in inertial guidance systems. In it molybdenum bars, for example, are machined down to hair-like diameter and matched in dimensionally precise pairs.

• A computational lab simulates all the aerodynamic and guidance problems a navigation system will face on any particular missile.

• A computer lab develops airborne computers rugged and reliable enough to withstand not only spatial hurdles but the proximity of a nuclear warhead—and puts them into a space little bigger than a suitcase.

• A reliability lab works incessantly on improving the reliability of all electronic equipment involved in an inertial guidance system. Its achievements aren't so spectacular—but for an ICBM, they are vital.

• **Looking Ahead**—Arma is giving priority right now to the Titan's guidance system. But it's also doing research on inertial guidance for the space vehicles of tomorrow. And it's looking for an effective defense weapon against the very thing it's creating for the Titan—something that could knock an enemy's inertially guided ICBM out of action before it hit its target.

Such a defense is still well in the future—at present there's no way of interfering with an inertially guided missile once it has taken off—but Arma people feel there's no scientific law blocking its eventual discovery. **END**

How gleaming aluminum buildings rise from red mud

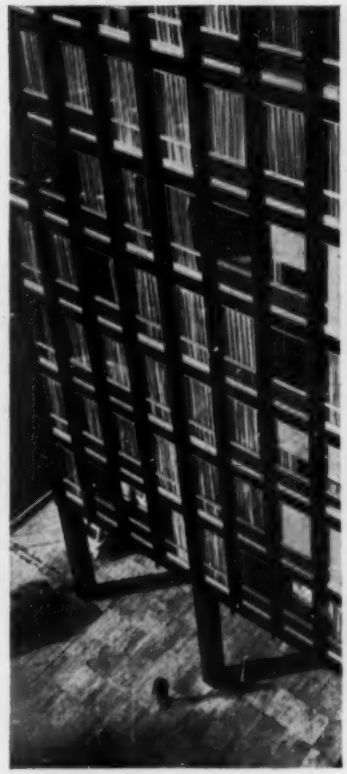
From Babel onward, men have held the vision of ever brighter, ever lighter towers soaring to the sky. Modern metals provided practical substance for the old dreams . . . look around at what's come true so recently.

High on any list of today's versatile, economical building materials you find aluminum and its alloys. Plate, sheet, rolled forms, extruded sections, tubing, wire, rod—forged, stamped, spun—this wondrous metal answers architects' aspirations, fabricators' requirements and users' needs.

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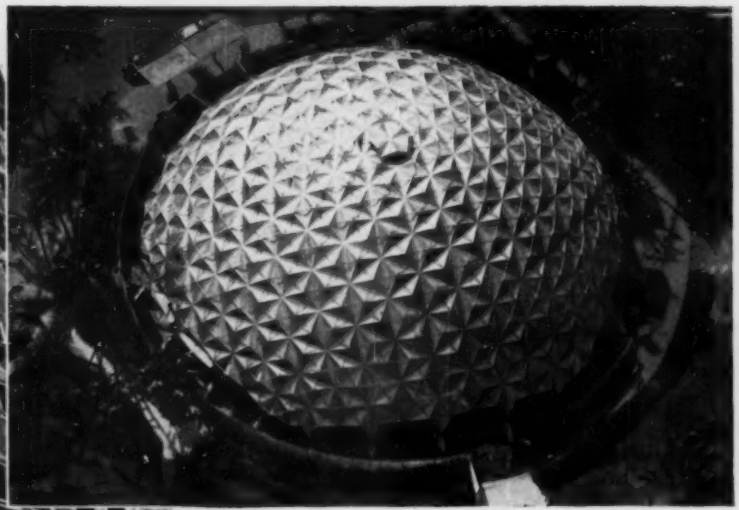
chemicals at work

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The Alcoa Building, world's first aluminum skyscraper, headquarters of the Aluminum Company of America, Pittsburgh, Pennsylvania. Architects: Harrison & Abramowitz.

Aluminum-domed auditorium, first structure of its kind to be built, graces the Hawaiian Village Hotel in Honolulu. Designed by Kaiser Aluminum & Chemical Corporation.



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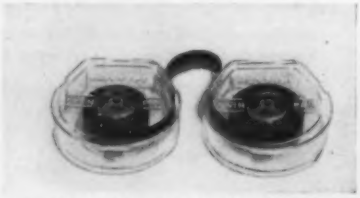
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Schools: The Worst Is Over

Some communities actually have licked their classroom shortages. Others are still building, but at a less frantic pace.

WHEN SCHOOL BELLS started ringing this month, it was evident that the nation's frantic school construction program was beginning to catch up with the burgeoning juvenile population. The crisis in school building now seems to be under control—temporarily at least.

Thousands of children found new schools awaiting them and thousands of others found less congestion in existing buildings. The building spree of recent years has not eliminated all double sessions or permitted the razing of all obsolete schools, but it has gone a long way toward meeting the need for more classrooms.

• **Cross-Country Picture**—A cross-country check by BUSINESS WEEK correspondents turns up this picture:

• The pent-up demand for classrooms—caused by the low level of school construction during the Depression and World War II and by the high wartime and postwar birth rates—has been reduced substantially.

• The main need for the next few years will be for junior and senior high schools, which are just beginning to be infiltrated by children born of wartime and early postwar marriages. The total dollar costs should stay high because one high school runs the equivalent of several elementaries.

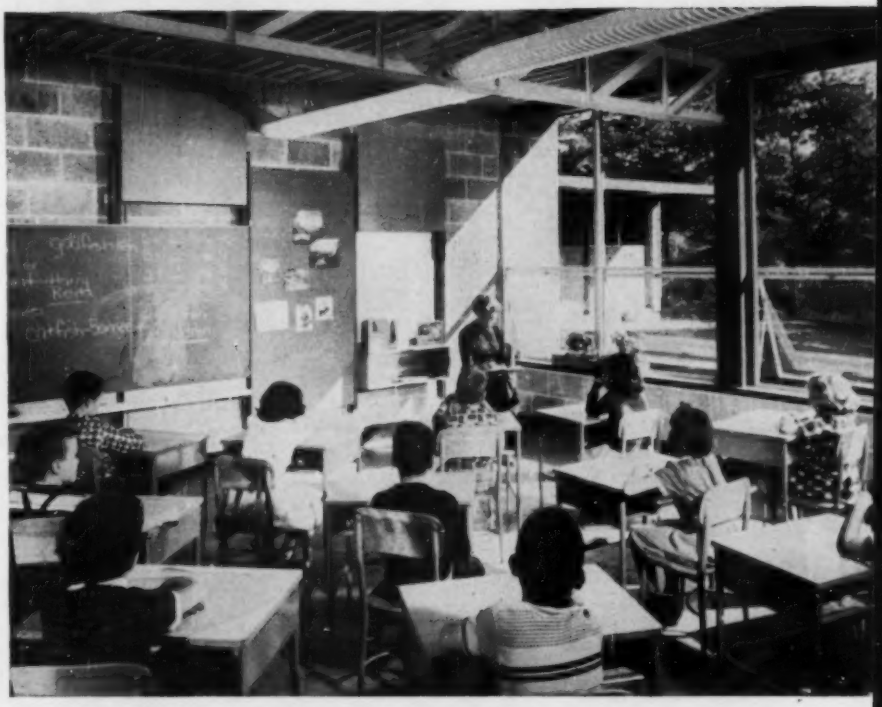
• The classroom shortage has been aggravated by public resistance to higher school taxes or bonded debt and by unpredictable shifts in population. In quite a few cities, while school planners tried to figure how rapidly different subdivisions were growing, half-empty schools nearer downtown sections began to become crowded as low-income families moved into the area.

• Public insistence on economies have resulted in deeper thought in planning schools, greater public participation, innovation in layouts and appointments that turned out on occasion to be desirable as well as economical.

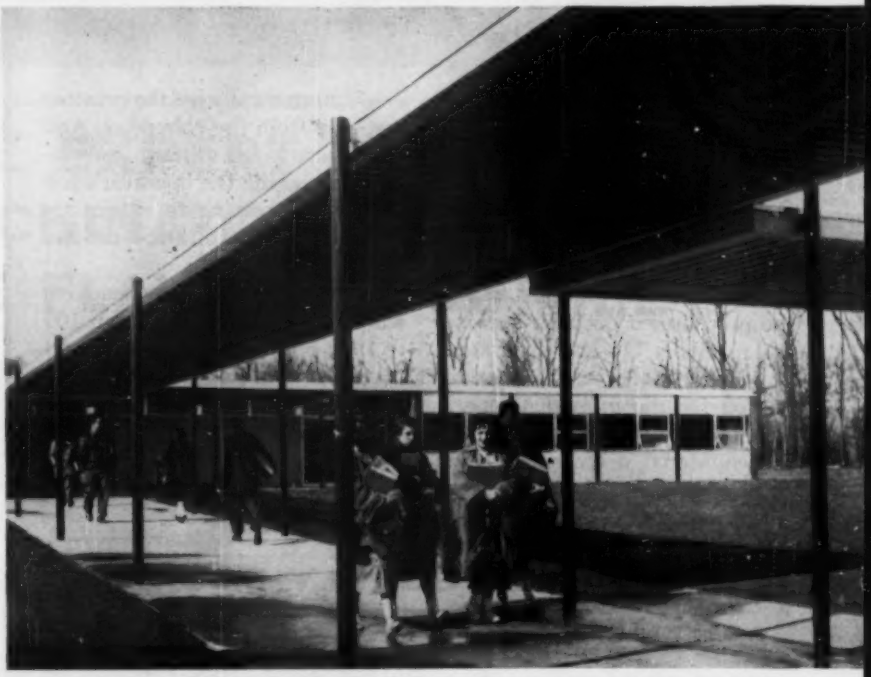
I. Shift in Emphasis

The school construction pace of the last several years has been so swift that some cities are set for a few years without the need to build any more classrooms.

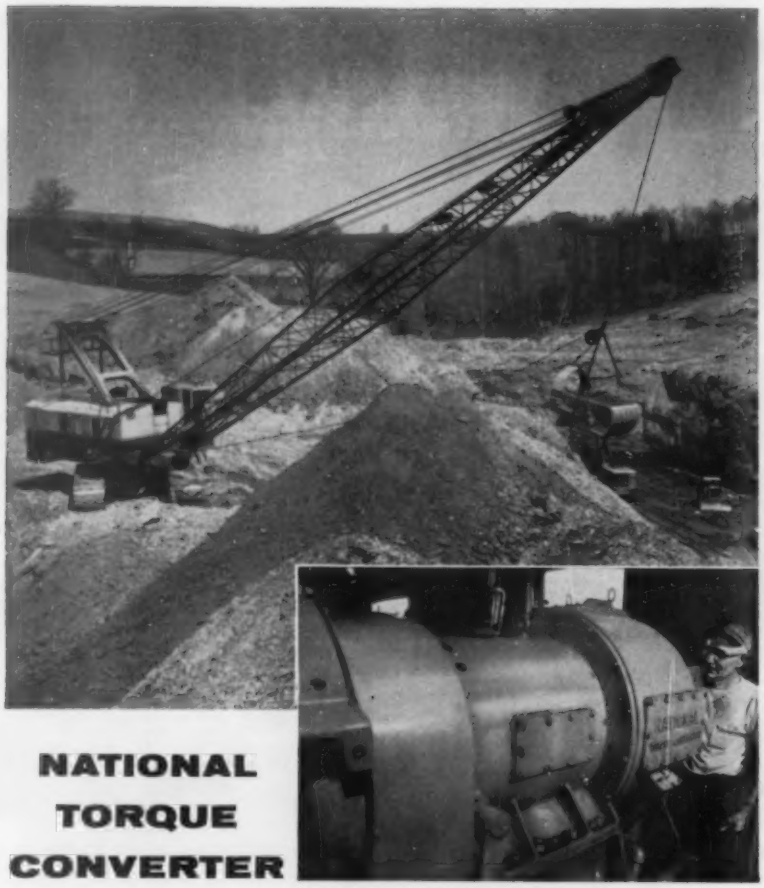
• **Slow Start**—After the war, it took



NEW CLASSROOM in Darien (Conn.) school has movable furniture for greater flexibility in use, and block walls and ceiling of structural materials for low-cost maintenance.



SEPARATE BUILDINGS—10 of them—make up this high school in Northport, N. Y. This design cuts down need for non-educational space, lends itself to later additions.



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"... as the bulge in youthful population moves up through the grades, cities see they aren't through building ..."

SCHOOLS starts on p. 65

some time before the need for new schools was able to penetrate the public mind. As late as 1953, a city like Kansas City, Kan., still was sitting back waiting for some kind of federal aid before going off on its own. A few communities still were hoping for help this year when Congress killed the federal school aid bill, but they had begun building in the meantime.

Toledo, which had the advantage of a big school building spree in the 1920s, had to build only a few new schools since the war and now is in good shape. Kansas City, Mo., talks of having adequate school facilities until 1966. Even Los Angeles, which spent $338-million on 145 schools since 1947, while enrollment soared by 100,000 to 585,000, figures it has its school shortage under control—if not licked.

• **Changing Need**—Now the need is for junior and senior high schools. As the bulge in youthful population moves upward through the grades, cities can see they aren't through building schools yet.

San Francisco built 23 elementary schools, three junior highs, and one senior high school with 1948 bond money. But last year's bond issue provides two new senior high schools and only three elementaries. Tulsa built 11 elementaries, two junior highs and a senior high since the war, has three more elementary schools and a junior high under construction. Now it is making plans for two new senior high schools. Even Toledo, is getting ready to build two more high schools.

• **Record Financing**—The dollar volumes involved in school construction have attained such proportions that school districts sold a record of $1.6-billion worth of bonds during the first eight months of this year, according to the Investment Bankers Assn. Of that figure, $229-million alone were sold during the normally slow month of August.

Even high interest rates have not scared school districts away. Investment bankers advise the districts to borrow what they have to, not to gamble with the market. Most seem to be taking that advice. Even those that back out when they first try the market, come back in because they must.

Several cities, becoming more apprehensive, have been erecting temporary classrooms when they are not sure whether an area will grow sufficiently to warrant a permanent school. Los



In on-the-spot comparison test at Martinson's plant:

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". . . in some instances, bond issues are used as an opportunity to vote no confidence in the school board . . ."

SCHOOLS starts on p. 65

Angeles uses portable classrooms for 20% of all its space, makes all its plans on this 80-20 basis.

II. Early Resistance

In approving frequent bond issues running in the millions of dollars, citizens are reversing their previous positions.

In the early postwar years, many were adamant. They held that new schools weren't necessary. Gradually the lack of schools in the fast-growing suburbs and the pressure of double sessions became sufficiently compelling to put over the idea of new schools.

• **Opposition on Economic Grounds**—Then in many places cost became the issue.

Opposition to spending comes from diverse sources:

• Older families, whose children were already beyond school, don't want to be taxed for schools for newcomers' children.

• Young families, who budgeted themselves to the last cent in buying houses, feel they can't afford the increase in taxes needed to educate their own children.

• Large taxpayers, such as businesses, object to higher taxes on principle. More recently, however, many businesses have gone along with higher spending for schools. In some growth areas—near Houston, for example—plant managers of large companies have become active on school boards.

From January through August, 23% of the $886-million worth of proposed school bond issues were rejected in elections, according to Investment Bankers Assn. This ratio of rejection cannot be attributed specifically to any new mood of economy that may be embracing the country. Through the postwar period, there have been a substantial number of rejections—and not all for the sake of economy.

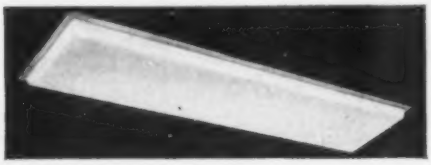
• **Other Reasons**—In some communities, there have been splits within a school board, with the bond issue caught in the middle of the dispute—and voted down. In La Mesa, Calif., and other cities, differences between business and the school board over school policies have resulted in defeated bond issues. In such instances, the bond election is used as an opportunity to vote no confidence in the school board.

Then there are property owners who simply don't want to be bothered with

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It isn't always indifference that keeps people at the water cooler more often than at their desks. Frequently, inefficient and ineffective lighting is the cause of "invisible absenteeism." Cure: A call to your authorized Lightolier distributor. He can audit your lighting needs, show you units such as the Optiplex illustrated. It's a trim, efficient fluorescent —entirely glare-free—easy and inexpensive to install and maintain. For a free brochure write today to LIGHTOLIER, Dept. BWO, Jersey City 5, New Jersey.



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". . . Long Beach school board appealed to oldsters as grandparents to win approval for school bonds . . ."

SCHOOLS starts on p. 65

schools in their own neighborhood, and start effective opposition.

In Detroit, which prefers to build schools out of current revenues, voters last April rejected a levy for a $30-million, 5-year program. One explanation was that business interests wanted the money raised through sale of bonds instead. Whatever the reason, school construction will stop this spring.

III. Enlisting Support

A study of what happens in school bond or levy elections generally leaves one clear impression: the bonds or levy have a better chance if the voters know exactly what's proposed.

• **Too Much Haste**—A good example of this comes from an upstate New York community whose school board some time ago suddenly awoke to the fact it needed more classrooms. In a big hurry, it drew up plans, put the proposals to vote in a bond issue—and lost.

The board had been in such a hurry, it neglected to tell the people what the rush was all about. Having learned this lesson, as others had before it, the school board is starting afresh with a more thorough approach.

In San Francisco, business helped swamp the first 1948 bond issue because it wasn't convinced of the need for more schools. The bonds later carried when the issue was cut in half. Last year, with business persuaded to take an active interest, another issue carried 5 to 1.

Throughout the country, school boards have pursued different approaches to enlisting voter support.

• **Pitch to Oldsters**—In Long Beach, Calif., the school board knew that older residents in many places had gone against school bonds. So it appealed to Long Beach oldsters as grandparents. The result: The older residents played a major role in backing bonds.

• **Citizens' Groups**—In the East, a number of school boards have appointed citizens' committees to work with educational consultants and architects. This helps stimulate their interest in voting for school bonds.

Some committees study curriculum: Should their schools teach college preparatory or vocational courses? Others study public demands on a school: How much will outside groups require its auditorium—can the district afford to make the school a community facility?

While citizens who become deeply

How to get rid of arthritis and find good Plant Sites



A centipede with arthritis sought the advice of a wise old owl. "Centipede," the Owl said, "you got a hundred legs, all swolled up with arthritis. Now if I was you, I'd change myself into a stork. With only two legs, you'll cut your pain 98%, and if you use your wings you can stay off your legs."

The centipede was elated. "I accept your suggestions without hesitation, Owl," he said. "Now, just tell me, specifically how do I go about making this change?"

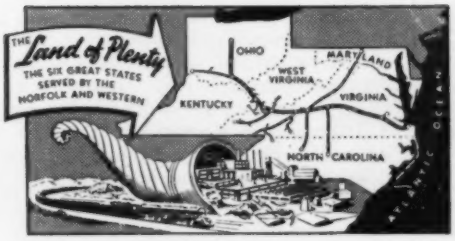
"Oh," said the owl, "I wouldn't know about the details. I'm in general policy."

If your company is looking for a good location for a new plant, you already know what the "general policy" is. What you want now is the details. You know what you want — now you want to know how to go about finding it with as little waste motion as possible.

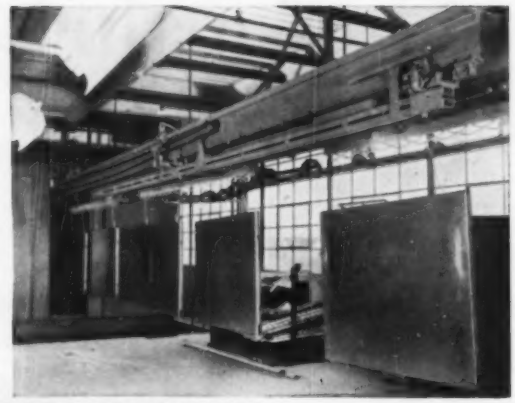
That's where the Norfolk and Western can help you. There are good plant sites in *The Land of Plenty* — and N&W plant location specialists know where they are and exactly what they offer. With long experience in helping manufacturers locate plants efficiently, they understand your problems. All they need to know is your specific requirements, and you can give them this information with the assurance it will be held confidential. They will work for and with you, without obligation. Now that you know the "general policy", let them give you the details.

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Industrial and Agricultural Department
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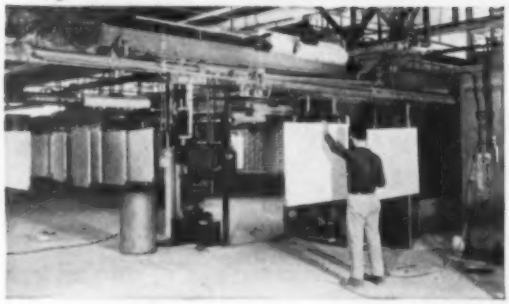


Norfolk and Western
RAILWAY

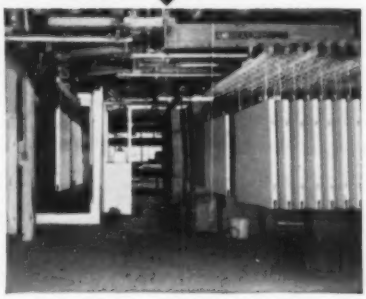


Landahl picks up panels as MonoRail pushes them from degreasing.

MonoRail pneumatically pushes a "car" of panels into a finish spray booth.



Finished panels are pushed by MonoRail from the bake oven.



Automatic Finishing with Power LANDAHL and AMERICAN MONORAIL

Space was saved and automatic finishing achieved by combining two overhead handling systems.
American MonoRail cars carrying metal panels move through degreasing, priming, finishing and baking. In each operation either loading or unloading is performed automatically by power—the Landahl Chainless Conveyor acting as a "pusher" over most of the system.

Here is "team work" engineering to take advantage of the flexibility of both American MonoRail and Landahl Chainless Conveyors.
This efficient system is installed at Fostoria Mfg. Co., Fostoria, Ohio, for finishing metal panels for office partitions.
For details on how American MonoRail or Landahl Conveyors can cut your handling costs, write today.

Write for Bulletin C-1 today

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". . . generally, efforts to effect economies have been achieved without impairing education . . ."

SCHOOLS starts on p. 65

involved in school planning provide a ready-made corps of advocates for school bonds. New York architect J. Stanley Sharp insists that isn't their primary function. "It would be easier to pay everybody $5 a head than set up committees." Sharp contends the ideas of those groups are important to the planning of the school, since they know what purpose they want it to serve.

One superintendent finds citizens' groups a good pipeline to new residents of his community, to determine how many newcomers are likely to attend parochial schools.

• **Residents Win Out**—In one New York community, architects were hired to plan a new elementary school. The citizens group disagreed, however. It wanted to preserve the community's policy of having all children of certain age groups attending the same school. Consequently, it decided to put fewer grades in each school, and build a new high school instead.

Citizens committees frequently wind up adding to the plans of the professionals, who have kept economy in mind.

IV. Economical Designs

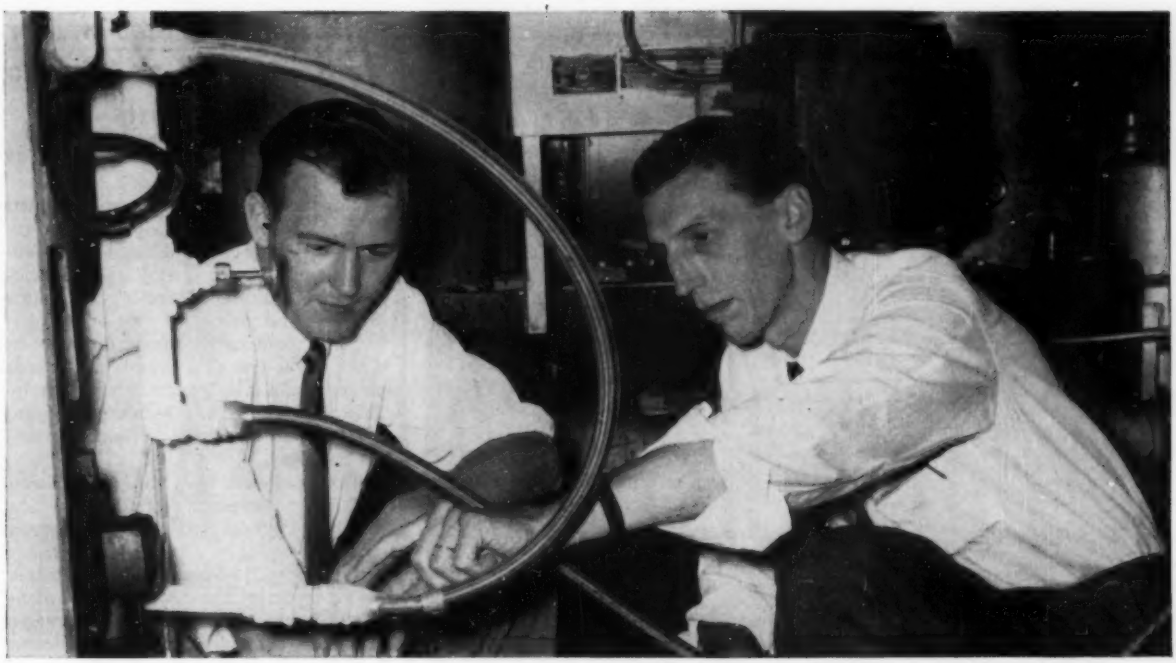
In this environment of cost consciousness, efforts have been made to effect economies without impairing education.

The general consensus seems to be that this has been achieved. Neither lavish nor skimpy—that's the way BUSINESS WEEK correspondents described the new schools.

• **Fewer Corridors**—In most cities, the easiest way to save has been to cut hard on corridor space. Educational consultant Nickolaus L. Engelhardt, Jr., figures that 70% of a school's gross area should be educational area. If more than 30% is used for non-educational purposes, waste is likely. Corridors make up most of the non-educational areas; so that's where you have the greatest opportunity for cuts.

This line of thinking has produced a number of campus-like public schools that have several separate buildings connected by covered walks. Los Angeles is experimenting with back-to-back classrooms, saving one wall as well.

• **Multipurpose Rooms**—There is also a trend to combining cafeterias, auditoriums, and gymnasiums into one large, multipurpose room with movable fixtures. In Miami's "cafetoriums," lunch



Severe Problems of Handling Chemicals Solved with Aeroquip 2802 Hose Lines of TEFLON*

You Reduce Maintenance Costs Because Aeroquip "*super gem*" Fittings are Reusable

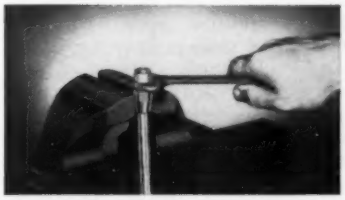
Example: Methylene chloride is essential in the processing and packaging of insecticides and other compounds by Connecticut Chemicals (Canada) Ltd., Toronto, producer of aerosol products . . . but it's notoriously tough on all kinds of hose lines, except one—

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Aeroquip's corrosion-resistant, stainless steel "*super gem*" Fittings are the only detachable, reusable fittings for hose lines of Teflon. By reusing them to make replacement lines, a substantial portion of total hose line cost can be saved. The Aeroquip Distributor listed in your Yellow Page Telephone Directory has complete information, or send us the coupon below.



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Deepwater station of the Atlantic City Electric Company in Penns Grove, New Jersey

The Atlantic City Electric Company knows it can count on the dependability of De Laval barrel type boiler feed pumps. Three ten-stage units are currently in service in the generating station shown above. When it came time to modernize one of their existing facilities, Atlantic City Electric Company and Gibbs & Hill, Inc., consulting engineers, chose two similar De Laval pumps to serve their new 79,000 kw generator.

The reliability of De Laval barrel type boiler feed pumps is the result of engineering experience and precision manufacturing methods. De Laval multi-stage centrifugal pumps, for pressures up to 5500 pounds, are now in operation.

Also doing an important job in this Atlantic City Electric Company station are De Laval IMO screw-type positive displacement pumps. They supply fuel oil to the burners round-the-clock.

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Barrel type boiler feed pumps
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Ship propulsion units and marine auxiliaries
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Worm gearing

DL-393

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895 Nottingham Way, Trenton 2, New Jersey

"... many have used interior walls of block or brick to avoid painting costs ..."

SCHOOLS starts on p. 65

tables are designed so that when turned upside down they became auditorium seats. Atlanta cuts out auditoriums entirely when money is short. Los Angeles has quit building separate gymnasiums for boys and girls.

Since equipment runs from 8% to 12% of the cost of a school, Engelhardt advises school boards to save money by taking advantage of competition among manufacturers and by shopping for better values.

Los Angeles tries to hold down kitchen equipment costs by building central kitchens to serve a dozen schools.

• **Cheaper Maintenance**—BUSINESS WEEK reporters also found an abundant use of brick, aluminum, and tile to save painting costs, even where installation may be more expensive. Many schools have used interior walls of block or brick to avoid painting, and have let roofing materials serve as ceilings by painting them in bright shades.

Engelhardt suggests school boards can save some money on materials by using what's cheapest in their area. In a metal center, for example, metal might be cheaper than lumber; in a lumber area, lumber would be used more.

• **Flexible Classrooms**—With acceptance of movable furniture and partitions, rooms have become more flexible. Teachers can arrange everything to suit individual classes. And rooms can be used for different purposes at alternating hours: say, a room could be both a science laboratory and an art class. To minimize corridor space, drinking fountains and clothes racks have been put inside classrooms.

In classroom design, cities such as Chicago have gone in for almost square rooms—larger than the old oblong ones, having better acoustics, more flexibility since, with movable equipment, there is no front or back. Toledo, however, sticks by its model classroom, 20 ft. by 40 ft. because it provides more flexibility—and economy.

• **Land Costs**—All school boards could save money long before a school is built if they had—or used—power to buy land before subdivisions raised land values. Many that have the power prefer not to use it to avoid antagonizing people. Or they just don't have the money to buy school sites ahead of time. Land costs are a particular problem—and a less avoidable one—in the central parts of cities where schools must be expanded with immigration of new families. END

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Automation is now a practical means of increasing the *productivity* of *office personnel.*

Thus, the acute problem of finding new personnel for expanding operations may be largely met by upping the output-per-person through automation.

Moore Business Forms (the largest company in its field) has developed procedures with Automated Data Processing—or ADP—which have proved of value to both small businesses and large.

ADP contributes importantly to profits—not only by increasing the productivity of present personnel, but also by reducing errors, speeding work, improving employee morale.

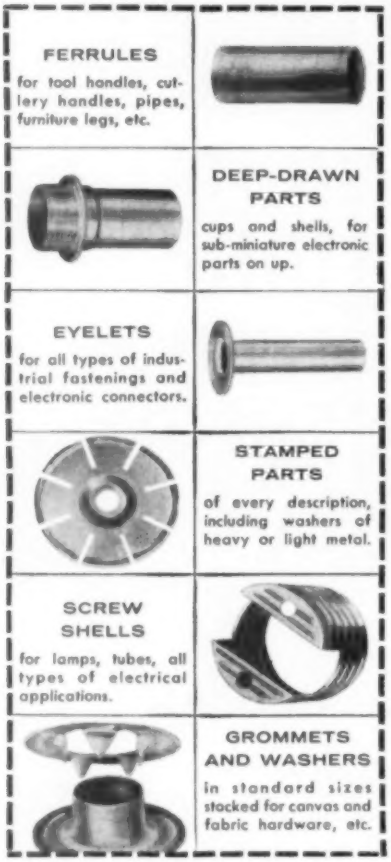
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Forklift for Sand and Surf

SPLASHING through water that covers its wheels to get to a waiting landing barge or ship, reaching up and grabbing the cargo, then heading back to land where it must crawl up a sand dune is routine work for this Army forklift truck.

It can even pull itself out of holes or mud (pictures at right). The truck, known as the Ranger, was designed for the service by the Industrial Truck Div. of Clark Equipment Co.

Ever since World War II, when amphibious landings and beachheads became a standard part of Army combat, there has been a need for a truck of this type.

The new forklift makes small auxiliary boats or chains of soldiers unnecessary for unloading cargo from landing craft that are stranded some distance offshore because of unfavorable beach conditions.

Both of these methods were slow and were not capable of handling the heavy loads that can be carried by the forklift.

• **Major Operational Features**—The new truck can operate in water up to 5 ft. deep and over all sorts of terrain. It also has a good many handling features that make it a practical piece of equipment for private industry as well as the Army:

• Front and rear axle steering makes it possible for the truck to move sideways at a 20-degree angle.

• The body and forks can be tilted left or right so that the cargo won't slip off the fork when the truck proceeds sideways across the slope of a hill or similar terrain.

• Off-center loads can be balanced by the hydraulic arms of the lift by using a side-shifting device that can move the forks 2 ft. to either side of center.

• The forks can be used as a built-in jack if the front wheels should get stuck in a hole or mud. They can be pushed down into the ground while the truck is backed off.

• Airplane-type disc brakes are guaranteed to operate even when the truck finds the going rough in either sand or water.

• **Several Models**—The forklift truck just unveiled by the Army comes in 6,000-lb. and 10,000-lb. capacity sizes that travel at 25 mph. forward and backward.

Now that the Army models have been made public, Clark is planning to market similar models for commercial use. **END**



It takes to water 5 ft. deep . . .



all types of rough terrain . . .

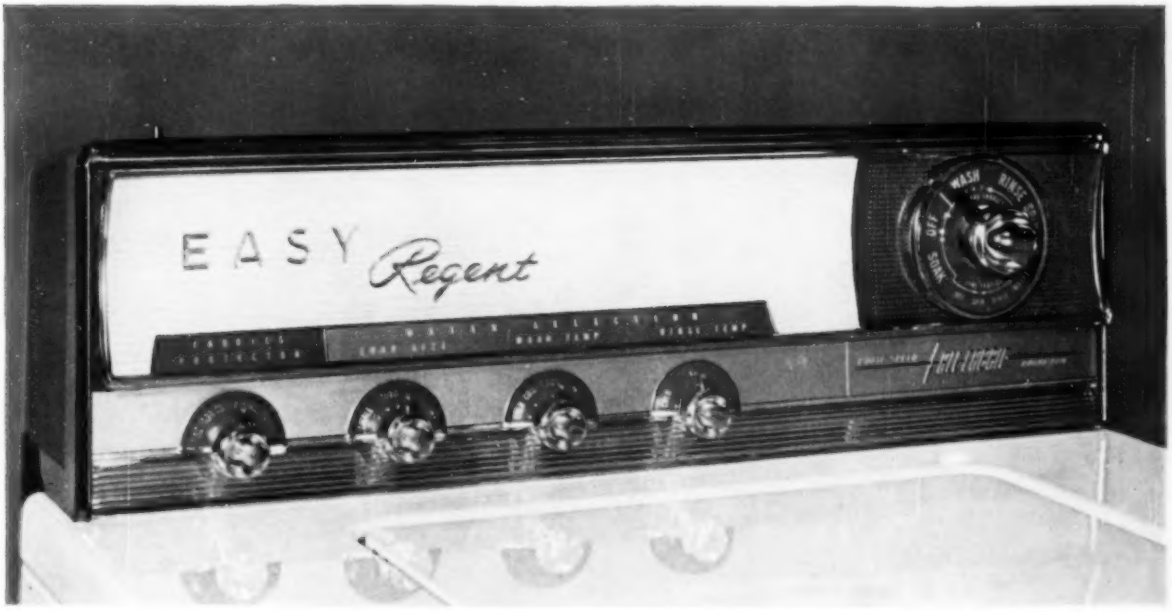


can pull itself out of holes.

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From side to side and top to bottom, the handsome control panel of this automatic washer is a single unit, molded of transparent PLEXIGLAS® acrylic plastic. The panel is lighted by concealed fluorescent lamps. Metallic effects, colors, letters and dial markings are achieved by decorating the back surface of the crystal-clear molding.

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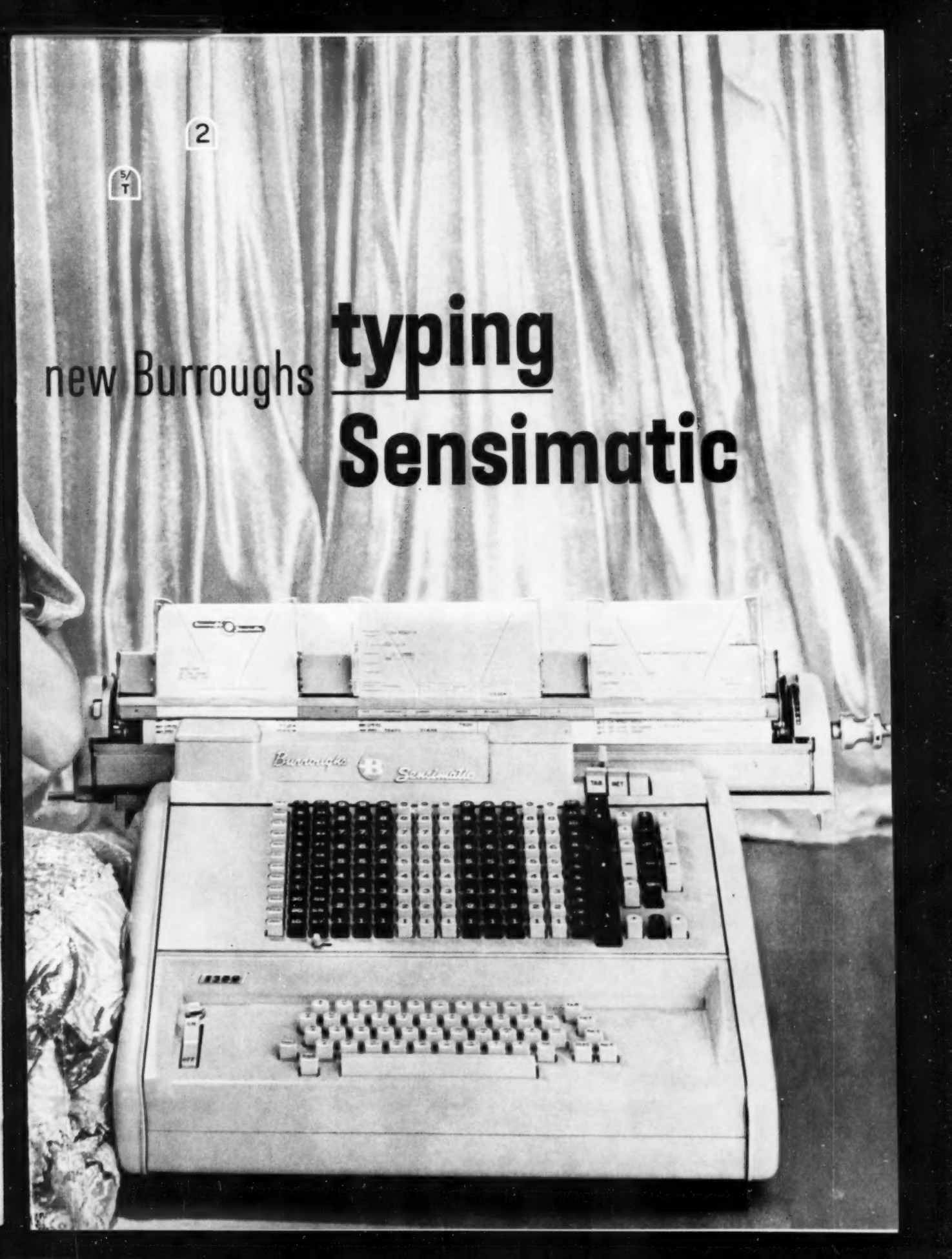
Effective today, descriptive accounting becomes simpler . . . faster . . . easier . . . and far more automatic than you could possibly have imagined just yesterday! Look what the new Burroughs Typing Sensimatic brings to descriptive accounting:

NEW typing principle for rapid-fire, jam-free typing! Printing-press quality, 84-character capacity. NEW automation through all the famous advanced Sensimatic features. Example: the exclusive Sensing Panel that guides the machine automatically through each accounting job.

NEW flexibility! Each interchangeable Sensing Panel wraps up four jobs, switches from job to job at the flick of a knob. To handle more jobs, operator merely inserts another panel. NEW operating simplicity! Electric-powered keys and controls on scientifically built keyboards are among many features that make it easier for operator to do her work faster, more accurately. Why not see *personally* the simplicity and ease, speed and flexibility of the new Burroughs Typing Sensimatic Accounting Machine? Call our branch for a personal demonstration of the newest member of the Sensimatic family. Burroughs Division, Burroughs Corporation, Detroit 32, Michigan.

Burroughs

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new Burroughs typing
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Caterpillar Tractor Co. is supplying a new kind of diesel tractor for use in the Antarctic. A product of Shell Research helped make this type of equipment possible.

The tractor that treads lighter than a man

Down at the bottom of the world, in icy Antarctica, *Operation Deep Freeze* challenges the world's worst weather in a test of men and machines.

Important to this operation are Caterpillar low-ground-pressure tractors that run over snowfields where men flounder hip-deep. This is a new breed of machine whose engines deliver high power without excess weight. They were developed after an advance in lubrication pioneered by Shell Research.

First in a new class of "super detergent" engine oils, Shell Rimula Oil paved the way for diesel engines that could run at higher speeds and with higher temperatures—*to develop more horsepower per pound of engine.*

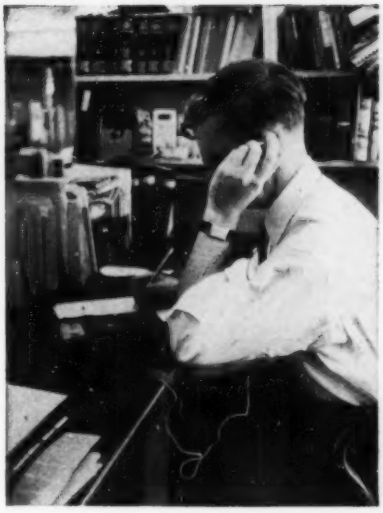
Caterpillar equipment is taking part in every phase of Operation Deep Freeze, and every machine which Caterpillar prepares for Antarctic use leaves the factory with Rimula® Oil in the crankcase.

Developing lubricants to meet severe conditions is an example of Shell Research in action. You benefit by such leadership whenever you use products bearing the Shell name and trademark.

Leaders in Industry rely on Shell Industrial Products

SHELL





For note-taking in field, playback in office . . .

A Midget Voice Recorder

The field engineer shown above is talking into a voice recorder that is scarcely any larger than a camera. Back at the office, he can play back his oral notes for transcription. The unit, which weighs only 2 lb., 11 oz., is designed for salesmen, doctors, newspapermen, and other persons who must make notes when they're not within earshot of a secretary.

A somewhat similar unit was put on the market a few years ago by a German firm.

The recorder, manufactured by Dictaphone Corp. and called Dictet, can be stopped and started by pushing down a button mounted on the small speaker. The battery-powered unit uses magnetic tape that records for an hour and can be erased. A finished tape can be mailed into the office.

For anyone wanting to record an interview, the starting button can be locked and the speaker clipped to the interviewer's coat lapel. This leaves his hands free for writing down additional information.

When used this way, however, it is not possible for the interviewer to get a good reproduction of his own voice.

If the finished tapes are to be transcribed by a secretary, they can be inserted in a Dictet-Typer, which amplifies and slows down the voice.

Price of the Dictet, complete with carrying case, is $308.50, plus 6% excise tax.

The Dictet-Typer costs $345.

NEW PRODUCTS BRIEFS

Ceramic coatings for structural aluminum alloys used in supersonic and hypersonic aircraft, rockets, and missiles have been developed by Gulton Industries, Metuchen, N. J., working with Lithium Corp. of America. By using the new porcelain enamel coatings, aluminum alloys that usually melt at temperatures of 1,375F can withstand temperatures of 1,800F. That means aircraft designers can replace sheet stainless steel with aluminum alloys that weigh one-third as much.

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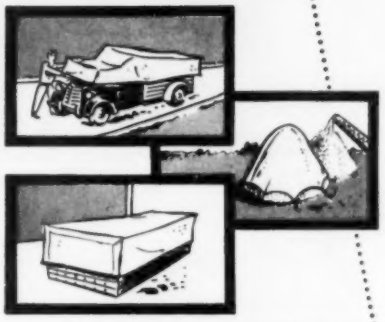
Aluminum asphalt roofing that produces a waterproof insulated metallic protective finish on roofs has been developed by Aluminum Co. of America. The coating can be used on cement, concrete, stucco, and cinder block. It can be applied with a brush or spray gun and comes in copper, gold, blue, green, brown, and aluminum. The formulations are available to all paint manufacturers.

•

A new synthetic rubber, called Genthane S, that can be processed on standard rubber machinery has been developed by General Tire & Rubber Co. The company says its new synthetic is capable of outwearing any known rubber. It is completely resistant to oil and ozone and can be stored indefinitely without deteriorating. Immediate uses include valves, gaskets, oil hose, O-rings, pumps, and wire and cable insulating covers, says General Tire. Tests are under way to determine the synthetic's suitability for tires.

NEW PROTECTION
for
OUTDOOR STORAGE

PAPER BUILDINGS



by Kennedy

Yes, paper buildings are fact . . . not fancy. In fact they are the newest concept in weather protection for outdoor storage of supplies and equipment.

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EARLY START is a rule of Link's day. At 7 a.m. he leaves his apartment building on Rio's Copacabana Beach for ride to work with Petrobras vice-president and treasurer.



FINDING OIL is Link's big job. So far, Petrobras has made progress in coastal and jungle area, thanks to 137 technicians (57 Americans) in Link's exploration department.



CONFERENCE in Rio office brings top geologists in to settle a problem on aerial prospecting that arose far in the bush. Field men often stay in jungle 40 days at once.

Brazil's Oil

For discovery of much-needed oil, Brazil's national monopoly turned to a U. S. geologist, trained in private enterprise.

WALTER K. LINK (pictures) is an American oilman fighting what may turn out to be a losing battle.

The battleground is Brazil—a country badly in need of domestic oil fields. Last year Brazil paid $283.3-million out of coffee export earnings to import much-needed oil. And this year's bill won't be any smaller.

The only company producing oil in Brazil is Petroleo Brasileiro S. A. (Petrobras), the government-run monopoly. Can Petrobras make Brazil self-sufficient to meet rising oil needs?

• **Crucial Job**—That depends, in large part, on 54-year-old Link. He is chief of Petrobras' exploration department, on which the company's board of directors is basing all its hopes.

What's also at stake is whether Brazil's special approach to nationalistic oil development can succeed. Petrobras is a typical case of oil nationalism—but with a difference. The government formed the company in 1954 partly as a slap at U. S. and foreign oil companies. Then—of all things—it turned around and hired Link, chief geologist for Standard Oil Co. (N. J.) from 1947 to 1953. Petrobras obviously hoped to come up with a formula for successfully mixing ultra-nationalistic oil policies with U. S.-type technical efficiency.

• **Predecessors**—Brazil is by no means the first South American country to take the nationalistic line in oil development. In 1922 Argentina formed Yacimientos Petroliferos Fiscales (YPF), a government company that faced an oil import problem similar to Brazil's but pushed domestic production at a snail's pace. Then, after the oil expropriations in 1938, Mexico set up Petroleos Mexicanon (Pemex) to monopolize production and marketing. So, by comparison with these veterans Petrobras is a newcomer.

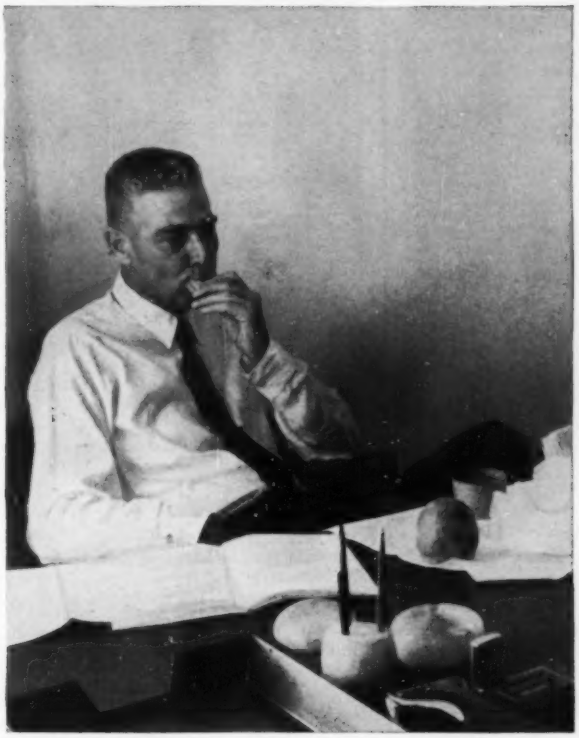
So far, Petrobras has made some headway in finding oil in the coastal and jungle areas of Brazil. The company may produce as much as 8-million bbl. this year—over eight times its production three years ago. And as a sign of slow but steady progress, Link's department spudded in a wildcat recently in Brazil's northeast.

I. How to Hire a Capitalist

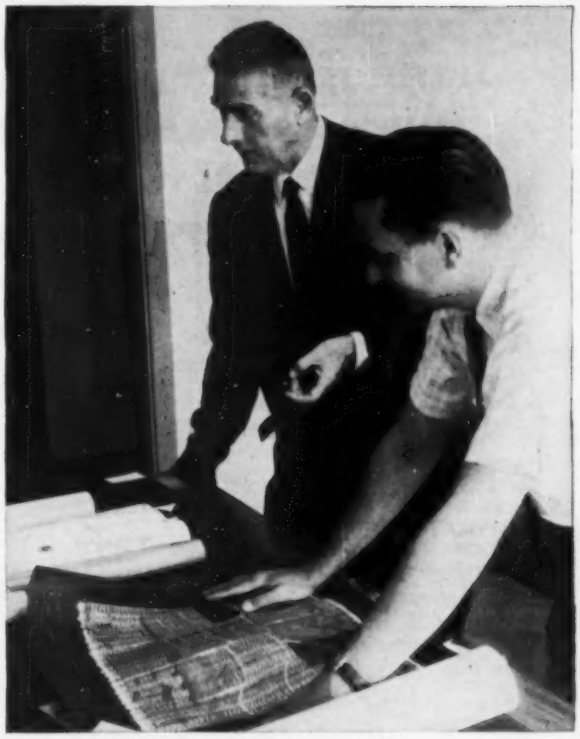
By hiring Link, Petrobras hoped to get a big job done quickly.

European oilmen—as one Petrobras

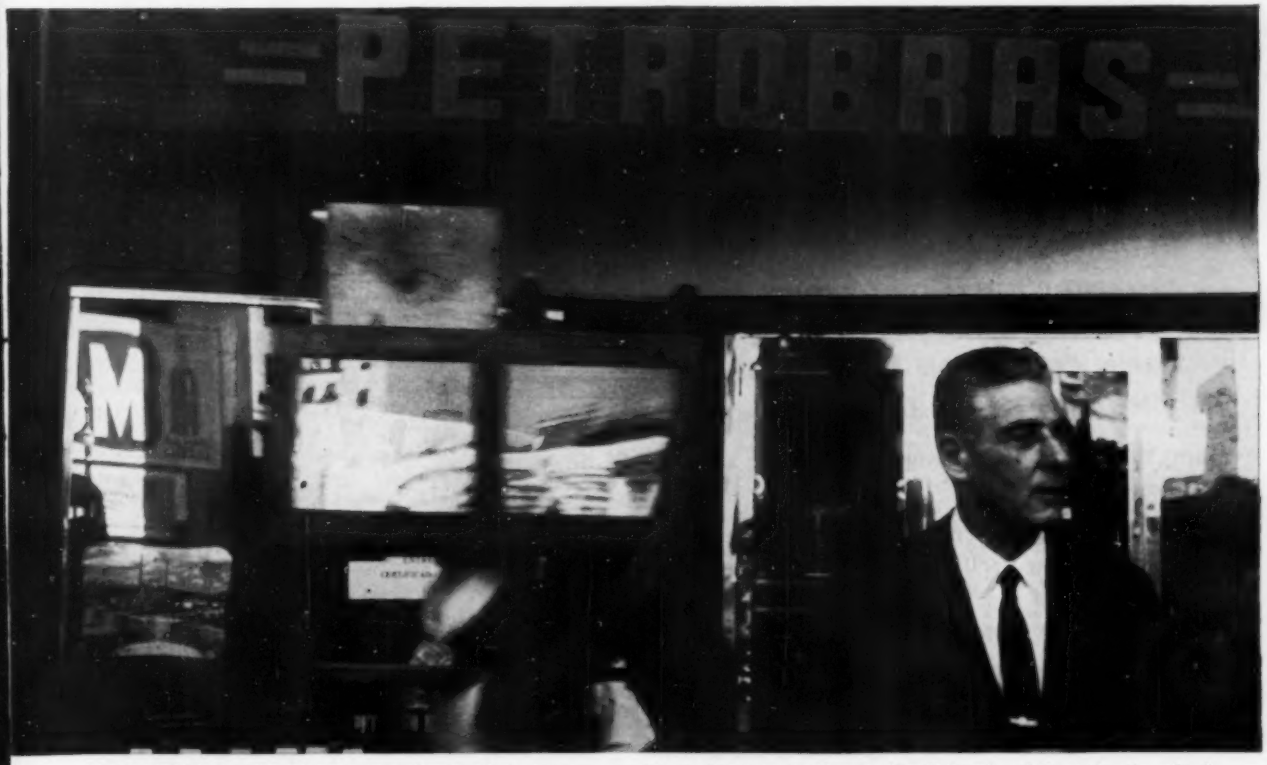
Hopes Rest on U.S. Expert



LUNCH AT DESK belies Link's $100,000 a year. He takes box lunch daily, partly to "get the only quiet hour in the day to think."

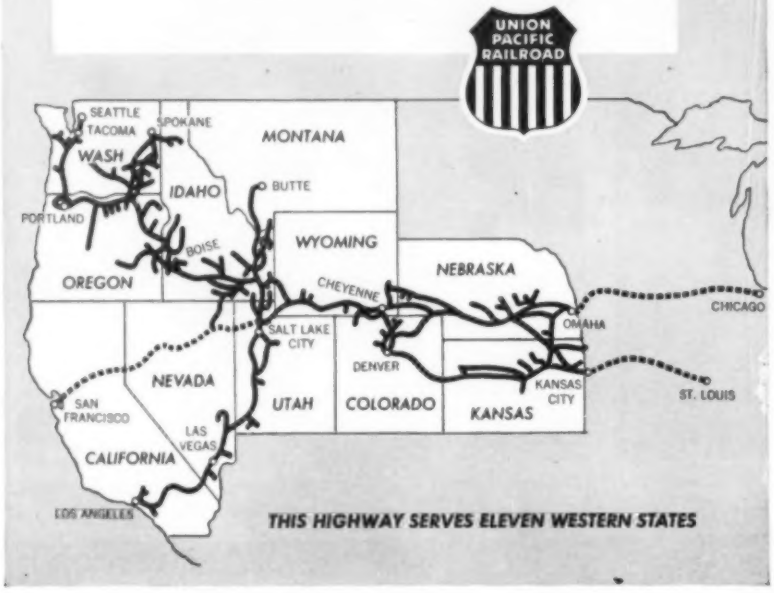


GEOLOGIST huddles with Link. After Link joined Petrobras, he built one of industry's best exploration staffs in Brazil.



DAY'S END finds Link leaving Petrobras behind. The monopoly's goal is to make Brazil self-sufficient in oil, but it's a long haul.

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EXPERIENCE that qualified Link for Petrobras post included an African tour.

director explains it—did not have Link's administrative and technical qualifications. Link knew Latin America—and Latin temperaments. He had worked all over the map for Standard Oil and its affiliates. Petrobras' board knew the company had to import the best brains because of the shortage of Brazilian technicians. "It was a technical job and had nothing to do with politics," one director says. Yet there's little doubt that Petrobras got a kick out of luring top talent away from Standard Oil—one of the foreign companies that had tried hardest to get the right to develop the country's oil resources.

• **Switch of Allegiance**—The only hitch was whether or not Link could transfer his loyalties from Standard Oil, a private company, to Petrobras, a fledgling oil company under the control of government bureaucracy. One Petrobras director had to explain to the others that American oilmen switch companies—and loyalties—quite frequently and, in fact, have a competitive drive to outdrill and outproduce their former employer.

The real oddity in Link's tieup with Petrobras was his personal attitude toward government companies. He was a "loyal Standard Oil man." He disliked what he had seen of foreign expropriations of private oil companies. He had no "socialistic tendencies"—and little sympathy for government intervention in industry. He told Petrobras officials that his new job would not change his attitude toward private vs. government companies. "I'm a capitalist without capital," he told Petrobras officials at his first meeting with them.

• **Fiscal Inducement**—Probably the

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job's main attraction was money. Petrobras first offered Link a contract with a fabulous percentage bonus clause tied to oil strikes. He turned this down because it would stir up nationalistic resentment. But he settled for an equally fabulous five-year contract providing more than $100,000 net income annually. That has made him one of the highest paid executives—in take-home pay—in the worldwide oil industry.

Link also saw the job as an opportunity for pioneering work. He was given a free hand in organizing his department just as he wanted to. He saw the chance of developing Brazil's first major oil field.

"If my exploration department can't find oil," he says, "nobody can."

II. Building a Department

Link's exploration department is one of the industry's classiest. Of 137 technicians, 57 are foreigners—mostly Americans. Structurally, the department is a close replica of the department Link headed while working for Standard Oil.

For a starter, Link contacted some of his old oil friends. He latched onto Standard's top geologist in Colombia. He got others—usually former prospecting buddies—from Shell, Imperial, Sun Oil, and Gulf.

Today, Link has a well-balanced exploration outfit. It includes 15 seismograph crews, seven gravity-meter crews, 12 field parties, 18 wildcat rigs.

• **Job Requirements**—Still, finding technicians is a major headache. Link's rule of thumb for employment is that a man must:

• Be tops in his field—but not necessarily the very top.

• Agree not to enter politics or get in a hassle with Brazil's volatile press. ("Just say all news comes out of Rio," Link advises.)

• Have a complete understanding with his wife that he may be off in the jungles for 40 days of work—with only a week back home in Rio or Belem sandwiched in every so often.

But Link has one card up his sleeve for getting talent—a whopping $30-million budget that rates as one of the oil industry's largest (outside the U.S. and Canada). In fact, one Brazilian official recently asked Link: "Don't you think you ought to spend more money to get things moving faster?"

Link says he never pirates men away from other companies—merely advertises for help. But some oilmen claim that he steals the best geological talent "because his government outfit doesn't care about answering to stockholders." One man notes that last April, Link hired 10 Americans at an oil geologists' meeting in St. Louis.

• **Challenges**—In any case, Link needs

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clues



LINK TAKES whiff of oil traces in drill stem sample from a Petrobras test location.

savvy oilmen to make out in Brazil—what with the formidable obstacles prospecting crews face there. In Petrobras' main office in Rio de Janeiro, Link says: "Looking for oil here is like exploring the South, Southwest, and Far West of the U. S. with operation headquarters in Chicago." Even Belem at the mouth of the Amazon—a city where Link has set up a branch base—is more than a thousand miles from wildcat drilling in the Amazon.

The Amazon basin is where Link is concentrating over 60% of his work. "We're going to have to find a real bonanza there," he says. Already, his crews have brought in two wells in that area—Nova Olinda No. 1 and No. 2.

Unfortunately, the Amazon has as many problems as it has oil potential. Above ground, it's a cluttered jungle blistered in steamy heat, drenched with rain six months each year, and filled with bugs and insects. Underground, there's a volcanic-rock formation so thick that Link's crews have to drill 6,500 ft. before finding anything. To top it off, the Amazon is a great distance from refineries and consumer markets.

"Altogether"—as Link puts it—"the Amazon is the most difficult, most exasperating, and most frustrating spot in the world for a geologist to work."

III. Hands Off Policies

A large part of Link's job is merely playing a neutral game in Brazil's overcharged atmosphere of ultra-nationalism.

When he started working for Petrobras in 1954, some private oilmen gave him the cold shoulder for "deserting the cause." To them, the newly formed Petrobras was a curse. Then, Pres. Getulio Vargas allegedly wrote a sui-

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cide note that talked about how Americans were grabbing Brazil's riches—and that didn't help Link's relations with nationalists. Newspapers—some Communist—accused Link, his wife Barbara, and their daughter of "conspiring to hand over Brazil's oil to Standard Oil" and of "being fascists."

• **Good Neighbor**—Link survived this by not mixing very much with either Brazilian or American oilmen. But now there's little hard feeling. In fact, oilmen from private companies are a bit envious of Link's high-stepping salary. One Congressional investigation in 1955 indirectly accused him of trying to sabotage oil development in the Amazon. But his calmness, easy-going frankness, and soft Indiana drawl put a damper on the whole attack. And today the only thing that really gets him down is the happy-go-lucky habit Rio has of puttings things off until tomorrow.

IV. Government Boss

In Petrobras, Link sticks to his knitting—the job of exploration. But the other departments—and top brass—stick their necks into politics so frequently that few over-all operating decisions are based on just business considerations. In fact, Petrobras is as much political organism as it is oil organization.

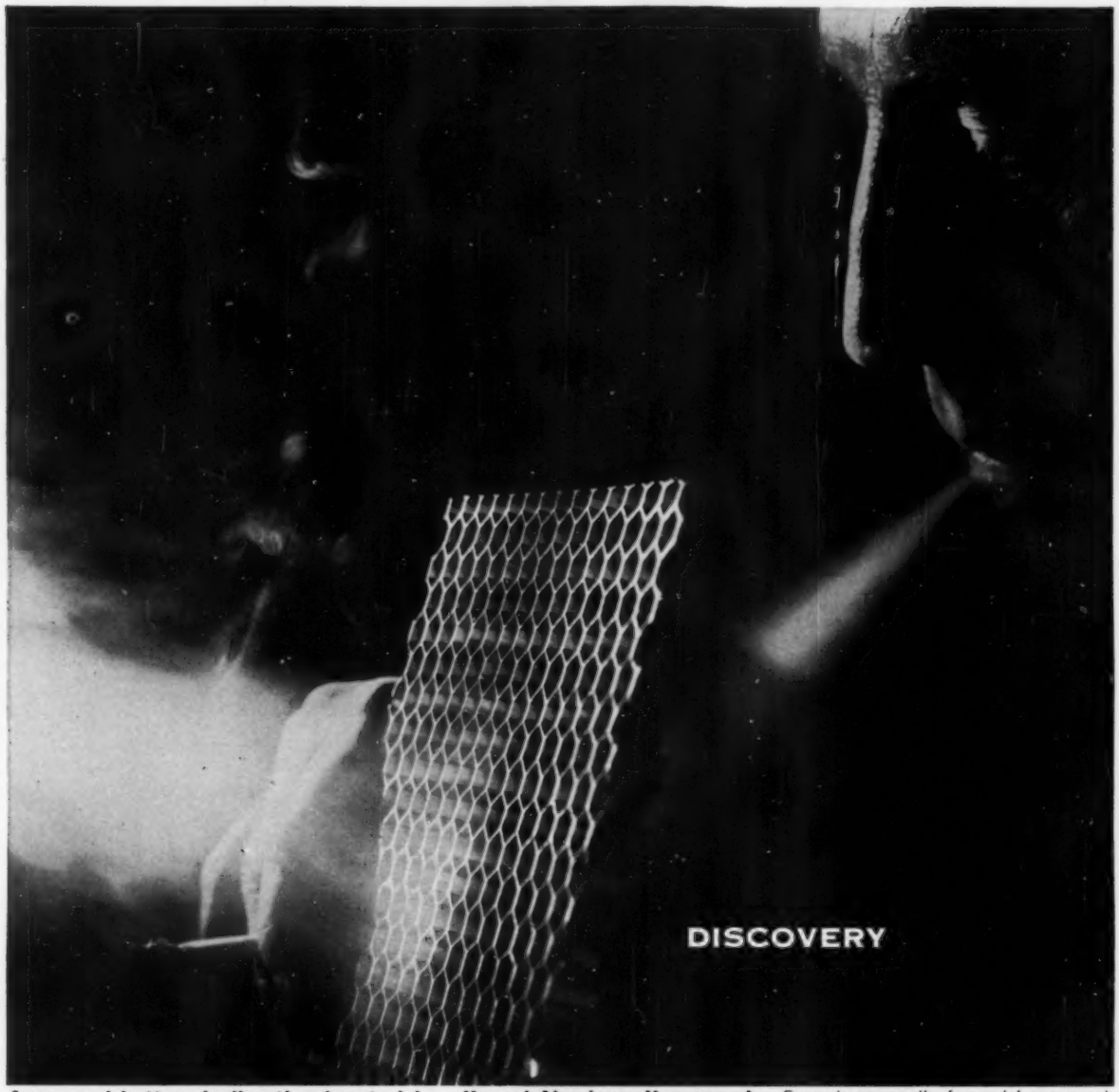
• **Resentment**—The company grew out of a long-smoldering dispute between the Brazilian government and private oil companies. In the 1910s and 1920s, Brazil was wide open to foreign oil companies. None showed much interest. During the 1930s, foreign oil companies usually ignored Brazil's pleas for building new refineries. Often they shipped Brazil oil only when the price was right.

In 1931 Vargas, the new president, played on this growing resentment in Brazil by closing the door on oil companies. In 1938, the government set up the Conselho Nacional de Petroleo to handle much of Brazil's oil development.

"We missed the boat," one oilman recalls. "There just wasn't enough long-range thinking about Brazil."

• **Change of Heart**—After World War II, the big oil companies—needing more sources of supply—rushed in to make new offers to Brazil. For the first time, the Brazilian government could bargain from strength. Serious dickering took place during the interim regime of Dutra, following Vargas' suicide. But the oil companies, able to get better deals elsewhere, stalled on the negotiations.

It was at this time the government formed Petrobras out of the Conselho Nacional de Petroleo. Congress left no loopholes in the Petrobras law for



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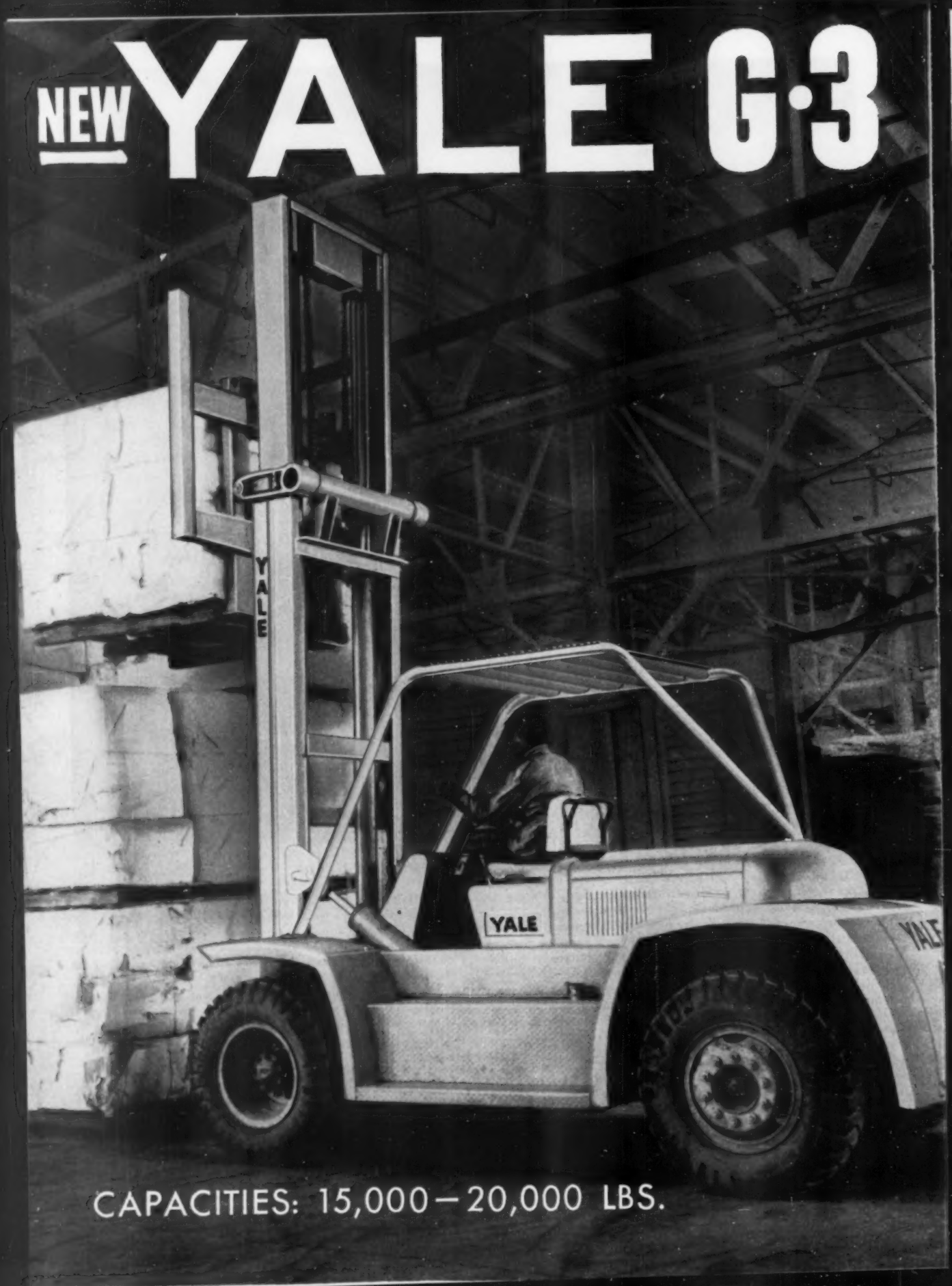
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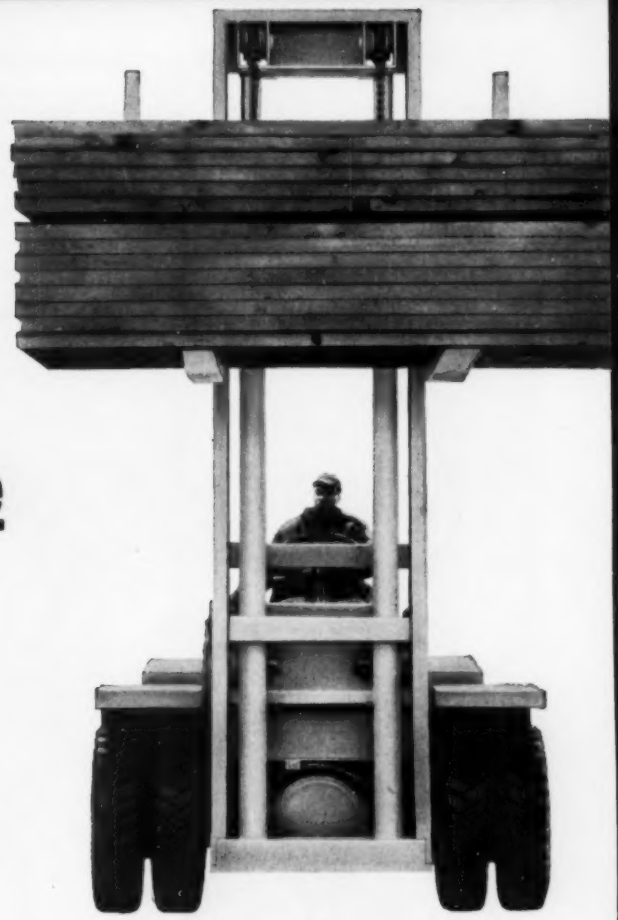
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permitting private foreign companies to move in later. Only private refineries already operating could continue in business. The government now owns 51% of Petrobras; states, cities, and private owners hold the remaining shares. The government has forced Brazilians to buy Petrobras shares when applying for auto and other licenses. In all cases, share owners must be Brazilian. (One Petrobras director is not a stockholder because he is married to an American.)

• **Inefficiencies**—Born out of politics and controlled by government, Petrobras is far less efficient over-all than the average private oil company. Thus, when Link finds a new production area, the production department is likely to bog down in handling its end. "And to get things done right—even some small office task—you often have to do it yourself," Link says.

The main trouble is confusion and politics at the top level. Petrobras' president is a political appointee. Janary Nunes, the company's present boss, often ignores his advisers and announces projects that "make spectacular news." Frequently, he regards his job solely as a steppingstone to a higher position in Kubitschek's government.

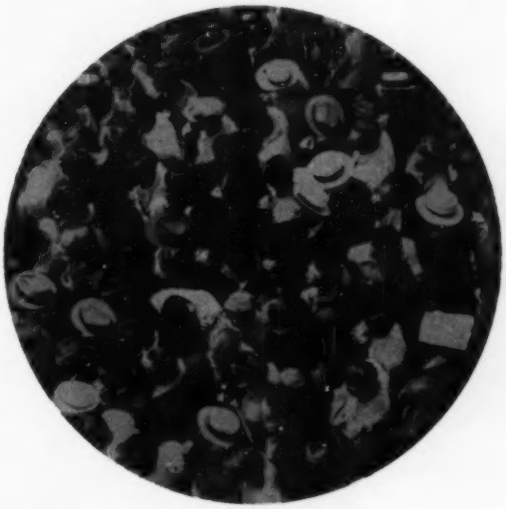
One recent example of playing for headlines: Petrobras put oil with a high paraffin count through a refinery designed for low-count oil. The company wanted to prove to the public that Brazilian oil was being refined in Brazil. The oil clogged the lines. Now, until a new refinery designed for oil with a high paraffin count begins operating, Petrobras has to export the oil at a per-ton loss.

• **Inadequate Supply**—But the real question is whether Petrobras—and Link's exploration department—can ever make good the promise of filling all of Brazil's oil needs. Present daily production of 26,000 bbl. may hit 80,000 bbl. by 1959 or 1960. But by then—according to estimates—domestic consumption will top 300,000 bbl. daily.

Despite this unhappy forecast, there's no chance in the near future of letting in foreign oil companies. However, private Brazilian companies might join hands with Petrobras, then let foreign oil companies become minor shareholders.

Link is strictly an employee with his contract up for renewal in 1959. But he views Petrobras' future somewhat optimistically. One bonanza oil strike—he says—and Brazil will no longer be so anxious to prove it can find oil on its own. More self-confident, Brazil might then relax its hold over oil and let in outsiders.

This theory hinges on no one but Link himself and whether his crews make a major strike in the next few years. **END**



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Russia's Jet Marks Bid to Build



ILYUSHINS like this Il-14 are the workhorses of Aeroflot's service inside the U.S.S.R. The line claims a 30% traffic growth each year.

Aeroflot's Tu-104 shows U.S.S.R. in lead for commercial jet service. Plane is a potent weapon for prestige, but getting business may be a lot harder.

THIS WEEK the U. S. commercial aviation industry was trying to pooh-pooh the visit here of the Soviet-built Tu-104—a sleek, swept-wing jet airliner that landed at McGuire Air Force Base in New Jersey after a nearly 22-hour trip from Moscow.

But the Tu-104, carrying minor Soviet diplomats for the upcoming U.N. meeting, is a good deal more than a half-baked Communist bid for publicity. The fact is that while no Western nation, including the U.S., will have jets operating on a commercial basis before 1959, Russia already has over 50 Tu-104s flying regular routes, inside the country as far as Siberia and outside to Prague.

• **Family of Jets**—More significant, the Tu-104 is only the opening gun in Moscow's plans for expanding commercial air service to cities round the world. According to Aviation Week, a McGraw-Hill publication, Russia now has a whole family of medium-size to

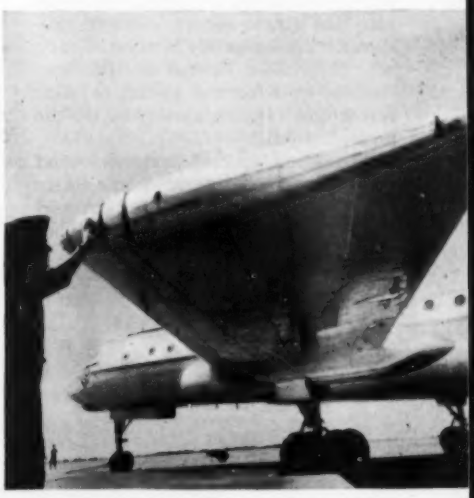




BOMBER? U. S. airmen say Tu-104 could readily serve as warplane.



22-HR. FLIGHT from Moscow brought Tu-104 to McGuire Field in New Jersey.



U.S. PILOTS liked looks of Tu-104, but said it was huge fuel consumer.

World Airline

large jet airliners emerging out of the prototype stage—for service on international air routes.

These swift technical advances over the past few years mean a big boost to Aeroflot, Russia's civil air transport agency. Aeroflot operationally corresponds in a rough way to Western airlines such as TWA or Britain's BOAC. But it has a complete monopoly on all commercial air traffic inside Russia—and a monopoly on setting up Soviet air routes to other countries.

Only a few years ago, Aeroflot kept to itself inside Russia. But recently it has moved rapidly to sign more than a score of bilateral agreements with other countries—most of them Communist satellites. It has been providing regular service to Scandinavian countries and flights three times a week to Peking, 4,700 mi. away. Now Aeroflot is shooting for the big time—international routes through the crucial Middle East area and, as of last week, to the U.S.

• **Showplace**—Aeroflot's moves might portend trouble for U.S. aircraft producers and airlines. In the near future, Aeroflot could put up stiff competition—with low passenger fares—on well-travelled routes. It could even encourage sales of new Soviet jets to countries shopping around for equipment.

But what really counts is Moscow's use of Aeroflot as a prestige weapon. The Soviets obviously hope to score a propaganda victory in the Middle East, and Asia, to brighten the image many underdeveloped countries have of Soviet technical achievements.

I. A Giant Airline

Aeroflot—according to Aviation Week—rates as one of the world's largest airlines. Its route network compares with Pan American's 63,000 unduplicated route miles. It boasts a fleet of at least 900 Ilyushin twin-engine transports, more than 500 Li-2s and Antonov Colts somewhat like Douglas' old DC-3s, and a fleet of smaller planes mostly for spraying farm land.

Still, it will take more than fancy jet planes and routes to make the international airline the Russians talk about building. Competition on the major world routes today is fierce—and more often than not it's based more on service and promotion, passenger relations and scheduling, than on equipment and routes. That's something Deutsche Lufthansa, the West German line, has found out much to Bonn's

Foldability of Peterson Folda Products Depends Upon Quality Townsend Fasteners



The popular size twin stroller, only stroller with side-by-side seating which will go through standard doorways, being assembled on A. E. Peterson production line.

The extensive line of Folda products produced by A. E. Peterson Manufacturing Company, Glendale, California is designed for baby's safety and comfort—for mother's ease of handling. For instance, she has a choice of ten types and models of strollers.

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Townsend special parts are used to attach the front wheels, casters and axles. Townsend standard and special tubular rivets are used at all pivot points—the important feature which permits folding for easy storage and handling of their products. Townsend tapping screws are used to attach arm rests and other non-removable parts.

Peterson officials give credit to dimensionally perfect Townsend parts for the permanent fastening they accomplish which has done much to establish their reputation for quality.

In your assembly operations why not take advantage of Townsend's experience in designing and manufacturing special and standard fasteners for a multitude of uses in all industry. To learn more about how to increase fastening efficiency, write for Bulletin TL-96a to Townsend Company, P.O. Box 237A, New Brighton, Pa.

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U.S. FLIERS cluster eagerly for a look at the just-landed Tu-104.

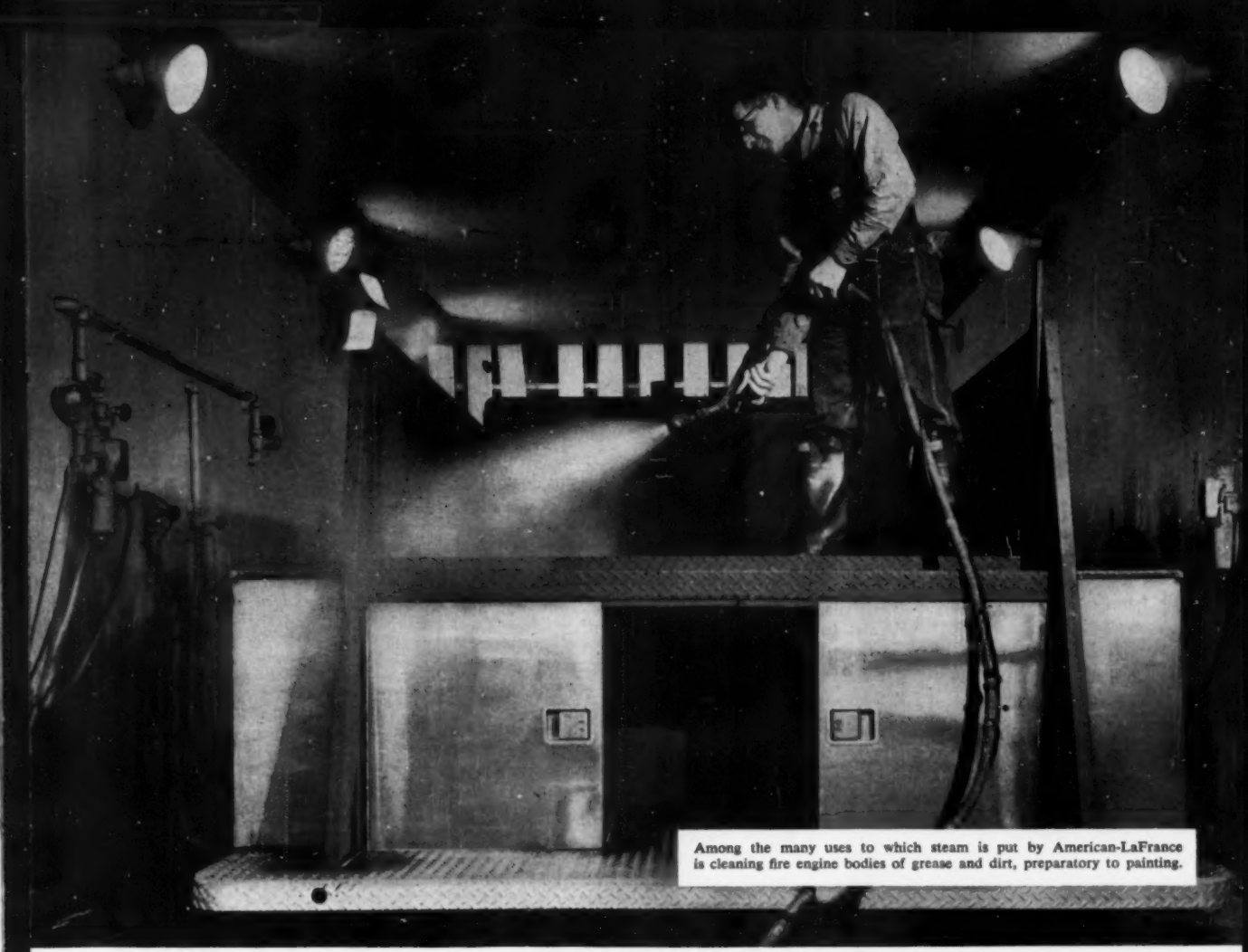
chagrin since it set out late to build a world airline armed with German technology and the reputation of the prewar German airline.

U.S. airline officials generally believe the problems of meshing schedules, selling tickets, setting up interline connections, and in a general way marketing their product, may turn out to be an even bigger problem than Aeroflot officials think.

Aeroflot controls virtually all phases of Soviet civil aviation—from building and operating airports across Russia to training crews and handling scientific research. Hub of its domestic and international operations is Vnukovo Airport, 20 mi. south of Moscow. It's an up-to-date airport with concrete runways that can easily take Tu-104s, a beam-type instrument landing system, radar approach controls, and a fair-sized terminal building. The main engine overhaul base is in Kiev. Boss of the whole works is Air Marshal Pavel Feodorovitch Shigarev, who is directly responsible to the Council of Ministers of the U.S.S.R.

• **Traffic Rise**—Aeroflot says it has handled some 4-million passenger trips over the past year. And traffic reportedly is climbing about 30% annually. Between now and 1960, passenger trips are expected to go up by 280%, freight by 100%, and agricultural work by 150%.

Aeroflot claims to be self-supporting—in fact, supposedly made a 9% profit last year. Despite some high operating costs—the Tu-104, for instance, gobbles up too much fuel by U.S. standards—the Soviet airline plans to lower fares soon to the same level as railroad fares. That could mean rough competition for Western airlines, if Aeroflot



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The Babcock & Wilcox Company, Boiler Division, Dept. BW-9, 161 East 42nd Street, New York 17, N. Y.

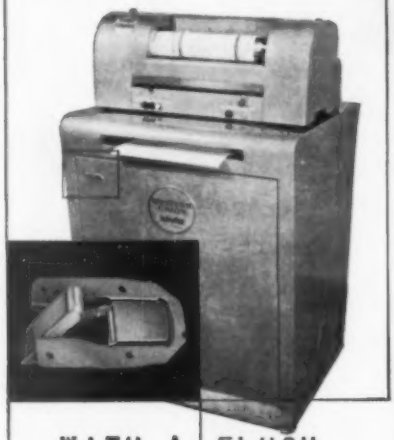
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CHIEF PILOT (in cap, left) and other Russians were interviewed at McGuire Field.

should apply these fares to international operations.

Some Aeroflot planes have seat belts—but generally passengers are not told to use them. Those who have flown Aeroflot say that in-flight service is below Western standards—with stewardesses often not in uniform. At present, only the Tu-104 serves full-scale meals aboard, from caviar to wine.

In Russia, passengers can't make reservations more than 10 days in advance. That's supposed to avoid complex booking problems. For domestic flights, passengers must be at the airport 10 minutes before loading; for international flights and the Tu-104s, a half to an hour ahead of loading.

II. In Borrowed Plumes

Until recently, no one except aviation specialists bothered to study Aeroflot's operations closely. There were two reasons why:

• Soviet commercial aviation lagged behind other countries in the West.

• Moscow purposely kept mum on the doings of Aeroflot.

The only close contact U.S. airplane makers have had with Moscow was during the 1930s. And that was Douglas, which sold several DC-2s to Amtorg Trading Co., the Soviet purchasing agency in New York. Then, during the war, Russia got a flock of C-47s—the cargo version of the DC-3—through Lend-Lease shipments. U.S. pilots returning through Siberia after the war said airfields were flooded with these planes. But the Russians have never come to Douglas for replacement parts or advice on servicing the planes.

• **Slow Advances**—Thus, in the early postwar period, Moscow plainly did not want to publicize Aeroflot because of its use of DC-3s and the slow development of Soviet-designed commercial planes comparable with U.S. and European models.

There's also some evidence that

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Aeroflot has had an above-average accident rate. Moscow doesn't report accidents at all to the outside world—unless they involve foreigners or occur on international flights. But you can get some idea of Aeroflot's troubles from the fact that at least three sizable crashes have occurred in the past two years—one involving Norwegians, another earlier this year with Americans aboard, and a third a few weeks ago at Copenhagen.

III. Spreading Its Wings

Now, with something more than Lend-Lease planes to show off, Aeroflot is making a big play for prestige in the worldwide airline business. Last fall, it made its opening wedge by flying the Tu-104 to London. It also flew to India to impress Asian countries.

It has set up regular flights to Helsinki, Stockholm, Copenhagen, Oslo, Riga, Vienna, and East Berlin—several of these daily or even three-times-daily flights. To the East, it makes regular flights from Moscow to Harbin, Chunyang, and Peking in Communist China and to Chinyang in North Korea. There is talk about its establishing regular flights through Afghanistan and India.

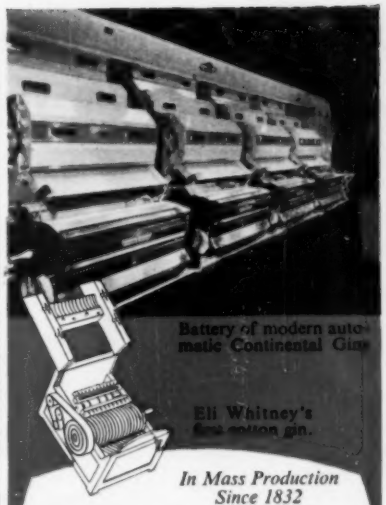
A month ago, Moscow signed an agreement with the Greek government to allow Aeroflot planes to use Athen's Hellenikon Airport enroute to and from the Middle East. This will open the way for the airline to fly into Syria and Egypt on a regular basis.

• **Currying Favor**—As part of this expansionist program, Aeroflot is working hard to make a good impression on foreign passengers. For instance, it has multi-lingual personnel at Riga to help passengers through the border routine. And crews on the Scandinavian routes give flight progress reports in both Russian and English.

Right now, Aeroflot is considering tourist and first-class service for its new jets. So far, it has operated only one-class service. Also, the airline's top bosses are studying both the International Civil Aviation Organization and the International Air Transport Assn. (IATA) with the aim of possibly joining.

As for equipment, Aeroflot has impressive plans. Late this year, it hopes to start using the Antonov Ukrainia—a four-engine turboprop roughly comparable to Britain's Vickers Viscount now in use in the U.S. By early 1959, the airline expects to put into service the Ilyushin-18—a turboprop closely resembling Douglas designs and somewhat paralleling Lockheed's Electra in performance and seating capacity.

• **More to Come**—The biggest showpiece, scheduled for operation sometime after 1959, is the Tu-110. This is another plane from the drawingboard of Andrei Tupolev, Russia's most fa-



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Billy Gilbert's routine makes crowds roar with laughter



BILLY GILBERT, star of the Broadway smash hit "Fanny"

When Billy Gilbert twiddles his moustache and bulges his eyes, the audience howls in happy appreciation. The crowd's noisy laughter pays off in box-office "take." But in business offices, noise costs money. The jangle of phones, the clack of typewriters, the buzz of conversation—all hamper concentration. The result: an inefficient office.

For quiet, pleasant working conditions—and increased efficiency—cover office ceilings with Gold Bond Travacoustic tiles. You'll be amazed at the way they soak up disturbing sounds. Travacoustic tiles are exceptionally handsome, too—they're textured like travertine stone (and are just as fireproof). And because each tile has individual markings, offices take on a smart, pleasantly special kind of look. Travacoustic ceilings are easy to install, can be kept clean and fresh-looking by vacuuming. Of course, they can be painted to match any color scheme.

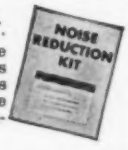
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AMERICANS boarded Russian airliner to help guide it on last leg of flight.

mous designer. It's a four-engine jet that looks much like the Tu-104 now visiting this country. It will carry 100 passengers—double the Tu-104's capacity but not nearly so spacious as the Douglas DC-8 and Boeing 707. The Tu-110—and the Il-18—will probably be used first internationally on the Moscow-Prague route.

The Tu-104 is not the first jet-type airliner to visit the U.S. In 1948, Canada sent its Avro Jetliner for a visit here. It never got into production because potential purchasers found it too uneconomical to operate. Other jet visitors since then: Britain's De Havilland Comet I, the ill-fated jet type that went through several crashes before being taken out of service; the British Bristol Britannia prop-jet; France's twin-jet Caravelle that was quiet enough to get permission from the New York Port Authority to land at Idlewild; and the new Comet II-A.

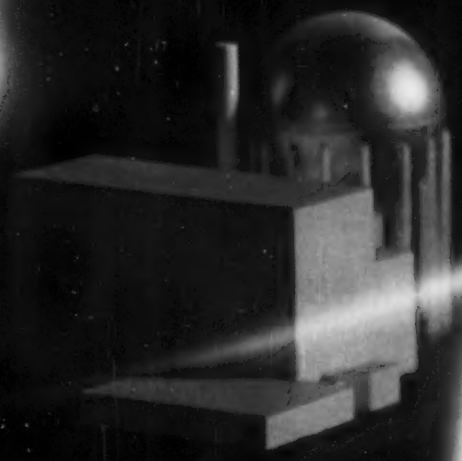
• **Medium Range**—None of Russia's new planes is really suitable for regular transatlantic operations. Both the Tu-104 and the upcoming Tu-110 cruise at approximately 500 mph. But their maximum range is about 2,000 mi.—medium-range by U.S. standards.

But Moscow may make a bid for Washington's permission to set up some kind of regular route. Aeroflot already routes mail and cargo over SAS' polar route to Los Angeles—and Russian pilots have long experience with Arctic flying conditions that would make polar routes a natural for them. Pan Am has been going through on-and-off negotiations with Moscow for two years for rights into Moscow.

So far, the Russians have not made a direct approach to the U.S. government—either for reciprocal rights or temporary certificates. Washington says that if the Russians want to sit down over a table and talk turkey about an air agreement, officials here would consider any Soviet requests sympathetically. END

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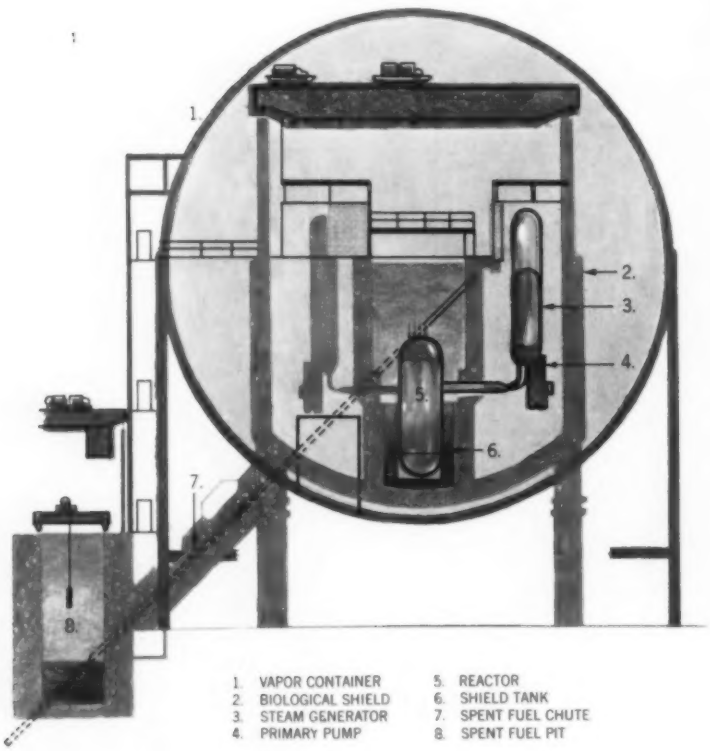
134,000 KW Power Generating Station for New England

Yankee Atomic Electric Company is building a 134,000 kilowatt atomic power plant in western Massachusetts near the town of Rowe. The overall design, engineering and construction of this plant is being handled jointly by Westinghouse Electric Corporation and Stone & Webster Engineering Corporation. Yankee's pioneering plant is being sponsored by ten of New England's leading utilities.

This first atomic power plant in New England will be similar to a standard steam-electric station except for the "boiler" equipment. An advanced, pressurized water, atomic reactor (using uranium as fuel) with its controls, auxiliaries and heat exchangers, will replace the conventional coal or oil-fired boiler.

The research and development program for this project is being financed jointly by the Yankee Atomic Electric Company and the Atomic Energy Commission. The AEC, through its Power Demonstration Reactor Program has agreed to underwrite up to $5,000,000 of this research and development cost. This research will benefit any company which later uses a reactor of this same general type. Yankee Atomic Electric Company has contracted with Westinghouse to carry out the research and design for its atomic reactor.

The Yankee plant is scheduled for initial operation in 1960.



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Among the additional projects at Westinghouse Atomic Power Department are: the first large aqueous homogeneous reactor (in partnership with Pennsylvania Power and Light Company); the Belgian Thermal Reactor, the first atomic power generating plant sold in the international market.

Westinghouse is ready — from planning to engineering to production of everything from reactor core to customer's meter. For complete information or assistance, contact your Westinghouse Sales Engineer, or write: Westinghouse Electric Corporation, 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pennsylvania. AP-4500

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In Business Abroad

• • •

Air-Minded Brazil Dickers for Jets, May Get Convair Assembly Plant

Brazil—a country of vast distances and severe ground transportation difficulties—is looking more and more to air transport. This week there were two developments:

• Sumoc, Brazil's foreign exchange regulating board, announced a $54-million foreign exchange allocation for the purchase of U.S.-built jets by three Brazilian airlines.

• Convair's Brazilian headquarters said it is dickering with the Brazilian government to build an assembly plant for Convair 440s, a turbo-prop, in Sao Paulo or Rio de Janeiro.

The three Brazilian lines that are getting the jets are all international carriers—the 49% Pan American-owned Panair do Brasil, Real Aerovias, and Varig.

Convair's deal depends on whether it can round up enough orders locally for its aircraft. The biggest bet is the Brazilian air force, which is toying with the idea of buying 100 locally made aircraft. The Brazilian airmen are choosing between buying from Convair or the German firm, Fokker, which would assemble and eventually build the F-27 in Brazil.

• • •

Railroad Linking Alaska, Argentina Proposed for Hemisphere Defense

An Alaska-to-Argentina railroad is the goal of a plan presented to representatives of the American states in Buenos Aires last week. The proposal was made by John A. Hastings, an American railroadman and a former New York State senator. Hastings says his railroad would be part of a $50-billion hemisphere defense program, and claims that it could be built on a 20-year plan to be completed in 1976. Hastings' proposal, with detailed estimates for contributions by each of the American republics concerned, was circulated in a folder given delegates to the 10th Annual Economic Conference of the Organization of American States, which concluded this week in Buenos Aires.

• • •

Paris Rumors Link Jersey Standard, Sinclair To Development of Oil in Sahara

Jersey Standard officials in Paris and those of the Compagnie Francaise des Petroles aren't talking about rumors that they have struck a deal for Sahara oil development. A French oil publication reports that Jersey Standard is ready to go into with the French company in a joint development in the yet-to-be distributed Sahara concessions if Esso gets a majority partnership.

Meanwhile, there is another Paris rumor that Sinclair will get into the Sahara race by associating with a previously reported group including Newmont Mining, Societe Francaise de Recherches et d'Exploitation du Petrole, and the Lazard Bank. **Reportedly, Sinclair will hold the largest single block of stock in this group.**

• • •

Mexico Sets Quake Toll at 71 Dead, Damage Estimated at $26.8-Million

The Mexican government has released the first official figures on the damage done by the earthquake that rocked central Mexico July 28 (BW—Aug.17'57,p68). Pres. Adolfo Ruiz Cortines says Mexico City damage amounted to $25.6-million, that damage in the neighboring state of Guerrero totaled $1.2-million.

All told, 975 buildings were damaged in Mexico City, including five that collapsed; three buildings still standing will have to be demolished. Official figures list 53 deaths in Mexico City, 18 in Guerrero state. Some private observers believe these figures are too low.

• • •

Anglo-American Outfit Wins Contract for Paper Mill in Poland

Parsons & Whittemore-Lyddon Organization of New York and London has latched onto a contract for a paper mill for Communist Poland in the face of severe Continental European competition. The machinery will be supplied by Black-Clawson Co. from its plant in Newport, England. Payment will be in sterling, not dollars.

The plant proposal calls for three machines to be ready to go into production on a staggered timetable beginning in the fall of 1959 and continuing to June, 1960.

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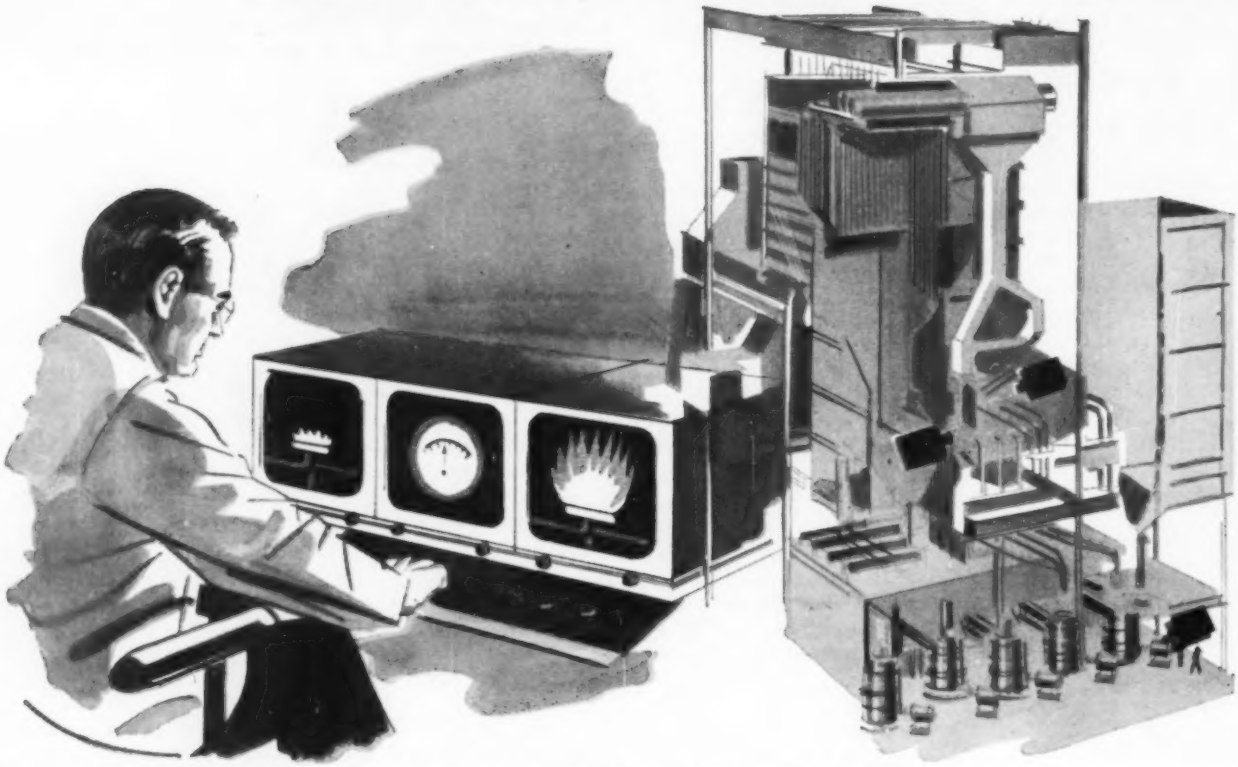
Business Abroad Briefs

GM Rhodesia? W. H. Rodkey, managing director of General Motors in the Union of South Africa, made "advance inquiries" into the possibility of a GM assembly plant in Rhodesia during a recent visit.

Flying Puerto Ricans: Even the experts have been taken by surprise at the booming rate of Puerto Rico's airline passenger market. During the last fiscal year San Juan's airport handled more than 900,000 passengers—a figure that wasn't expected to be reached before 1970.

New ventures: Owens-Illinois Glass Co. will build a glass plant, its second outside the U.S., in Valencia, Venezuela. . . . **Clark Equipment International C. A.,** has acquired a third interest in I.T.D. Ltd., a British forklift truck manufacturer. . . . U.S. interests are participating in the opening of a $2.5-million glass manufacturing plant in Jamaica, jointly sponsored by the **Jamaica Industrial Development Corp.**

Industrial TV: More Than a



Closed-circuit TV shows the steam plant operator the combustion condition at a cool distance.

Closed-circuit TV is still living down its reputation as a stunt, but it has gained many additional followers.

AT ONE POINT, the West Virginia Turnpike ducks through a mountain by way of a long tunnel. When there's no traffic moving, you'd think in the middle of the tunnel you were a million miles from nowhere. A while ago, a driver pulled his car to a halt, looked around to see if anyone was in sight, and took a couple of long pulls on a whiskey bottle. He was pretty surprised when he was pinched as he drove out in the open air a moment later.

Sure enough, he found, there had been no one in sight, but he himself was in sight. He had done his imbibing right in front of a closed-circuit TV camera, one of a battery installed in the tunnel to watch for breakdowns and traffic jams. A Turnpike patrolman had witnessed his elbow-bending on a monitor screen at headquarters.

This is the kind of story that inevitably grows up around closed-circuit television, but the makers of the equipment deplore it. The cloak-and-dagger uses of TV are many and spectacular. They get the publicity. But meanwhile the industrial TV people are trying to sell their product not for a few special tricks but for everyday nuts-and-bolts service in business.

• **Slow Going**—There are dozens of prosaic uses for industrial TV that cut labor costs, control quality, improve safety, speed production or transportation, and guard against crime. Closed-circuit installations have already proved themselves in all these virtues—but in nowhere near the over-all volume that was predicted four or five years ago (BW—May30'53,p40).

The industry attributes its disappointment to a couple of factors that may be changing right now:

• Sales effort has been spotty. The job of convincing businessmen that there's everyday work for TV in their





General Motors uses a TV camera to show spring action on the proving ground.

Novelty, Not Yet a Full Success

plants and stores has been too much for the small, specialized equipment makers to handle. As long as home TV business sparkled, the big electronics companies let their industrial departments drift. Now the home market is getting closer to saturation, and the big fellows in the industry may put more push into closed-circuit TV.

• Businessmen proved to be harder to sell than most enthusiasts had expected. Equipment is expensive, and managers must be shown a quick and sure payoff in savings before they will consider TV. Even then, some balk at the innovation. "My job's to get the stuff out—not run a television program," one plant manager groused. Only time, and the success of an impressive number of installations, will change this attitude.

One other snag in the industry's growth: It has taken longer than anyone had expected to find out how to design and engineer a TV setup for a specific business. Only lately have engineers acquired the knowhow and the choice of components to custom-build the best installation for each particular situation.

• **Size of Sales**—It's hard to say how much industrial TV equipment was sold last year. Even the Radio, Electronics & Television Manufacturers Assn. (RETMA), which keeps production figures for all phases of the TV industry, admits the reported figures of its members are unreliable. Guesses range anywhere from $2.5-million to $7-million.

Several manufacturers will tell you confidentially that they outsold the rest of the industry, yet almost all will say sales are disappointing. As a realistic company spokesman said, there's good reason for talking out of both sides of the mouth: Stockholders must be kept happy, but no one wants to encourage more competition than he already has.

However, the number of camera tubes for strictly closed-circuit TV that were produced last year gives some idea of sales. Last year, about 1,350 of the small Vidicon tubes were made. Most installations using such tubes are in the $1,000 to $5,000 price range.

• **Ground for Optimism**—Figures like these hardly seem to justify the sudden optimism that has burst out through the industry. But the enthusiasm is real enough. There's a strong feeling that the industry is about to pop, and everyone wants to be there when it does.

Four years ago, only about three manufacturers were actively pushing industrial TV. They were Dage Television Div. of Thompson Products, Inc., Diamond Power Specialty Corp., and Radio Corp. of America.

Since then, at least 20 have been in the field at one time or another, and a baker's dozen are active today, including Dage, Diamond, RCA, General Precision Laboratory, Inc., Farnsworth Electronics Co. (division of International Telephone & Telegraph Corp.), Halamore Electronics Div. of Siegler Corp., Kin Tel Div. of Cohu Electronics, Inc., Philco Corp., Sarkes Tarzian, Inc. (BW—Feb.23'52p116), Blonder-Tongue Laboratories, Inc., and—most recent additions to the list—Allen B. Du Mont Laboratories, Inc., and General Electric Co.

Bendix Aviation Corp. is also supplying equipment, notably its Lumicon camera tube as a competitor to the Vidicon tube.

Everyone is predicting tremendous growth in the next few years. Estimates of the 1959 market range from $8-million to $15-million; for 1962, you hear talk of at least $25-million, and some people go so far as $100-million.

I. Proof of the Pudding

Closed-circuit television, of course, has many uses outside the business routine. The West Virginia Turnpike setup is one such use. Others include stockholder or sales meetings, classroom teaching, and—probably one of the biggest uses today—surgical operations in hospitals.

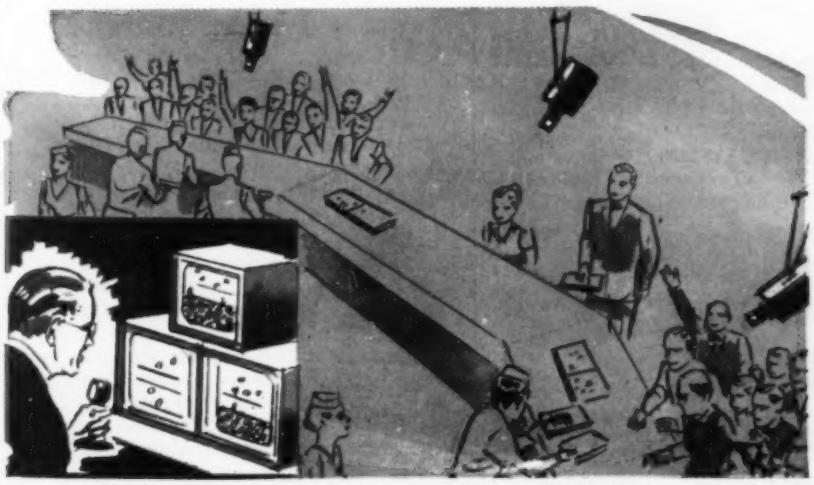
If industrial television (ITV) manufacturers are going to achieve mass sales, though, the gain will have to come in the field of everyday business. Last week, BUSINESS WEEK reporters talked to a hundred users and prospective users of ITV to find out how broad a wedge the TV gadgets have driven into the market.

• **Infinite Variety**—The very variety of uses that customers have found for ITV go a long way toward supporting optimism about market growth. In general, the video eye is used to:

• Keep a constant watch on gauges that aren't readily accessible. The steam power plants of public utilities were among ITV's first customers.

• Monitor other operations that it's not easy or comfortable for men to oversee, such as the positioning of hot metal in a rolling mill or furnace door. It can even go where the human eye couldn't possibly go—a company in the Texas oilfields, for instance, drops a TV camera miles into the earth, inside a drill pipe or casing, to inspect an oil or gas well.

• Observe dangerous work, such as jet engine testing or the handling of



TV can even show when to reinforce the hot dog vendors.



Stock prices can be flashed by TV.

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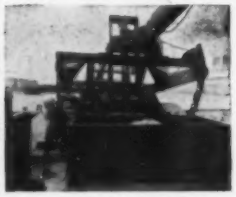
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radioactive materials, without exposing employees to any risk.

• Keep track of traffic, whether it's freight cars in a railroad classification yard or people waiting for elevators in office buildings or hotels. It can also keep tabs on inventory moving in and out of a warehouse.

• Transmit data instantaneously, without chance for error, in banks and offices.

• Speed up delicate machinist jobs, such as the lining up of work in a tool. The TV image is sometimes enlarged, by projection on a screen.

• Provide greater security at entrances of plants and apartment houses and also to discourage pilferage in warehouses and retail stores.

The basic appeal as a cost-cutter is to save steps and manpower. But improvement of service or of product quality is often mentioned also. A growing number of industrial TV installations score on both counts.

• **Gauge-Watching**—Several public utilities claim they were first to install ITV to monitor gauges and boiler flames (drawing, page 106). Connecticut Light & Power Co., for example, has been using TV to monitor combustion at its Montville (Conn.) steam plant since 1954.

An installation at Toledo Edison Co. is typical of TV's ability to save steps. Water gauges on some of their 10-story-high boilers are at the 8-story level, and operators used to have to climb the stairs periodically to check the water level. The first labor-saver was a series of mirrors to reflect the gauges to the ground floor. But mirrors get dirty and tend to fog up. Now a small television system brings the gauge readings to the operator's 8 by 12-in. screen.

Argonne National Laboratories, Chicago, has mounted a camera that swivels 90 degrees to read pressure, temperature, and water gauges on its experimental 5,000-kw. boiling water reactor. Commonwealth Edison Co. in Chicago watches water gauges by



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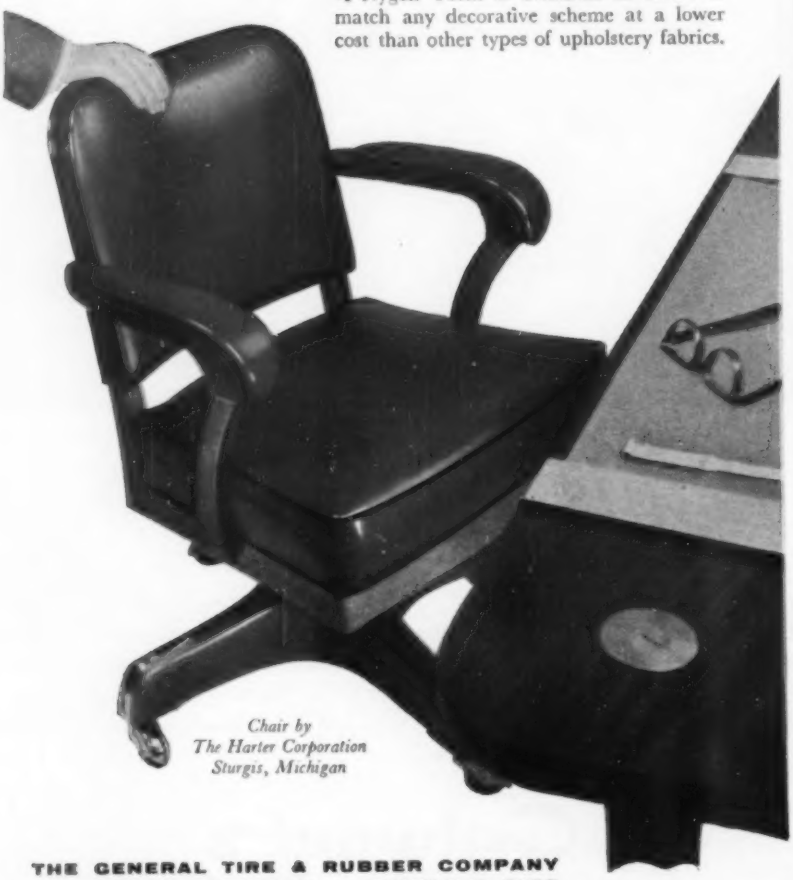
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TV and on two of its 12 stations has a camera aimed also at the smokestacks, to check on combustion.

Alabama Power Co. in Birmingham has two kinds of TV, one to watch gauges and a color system to judge combustion by the color of the flame. Company officials say their new GE system works fine, but an earlier installation by another company didn't click.

Florida Power & Light Co. calls its TV fare at the 402,000-kw. Cutler plant "the hottest show in town." The camera shows the swirl of flames in the fire box, so operators can check combustion from a safe—and cool—distance. FP&L says it will install TV in all its new power plants.

• **Remote Viewing**—Industrial TV cameras are small—a standard size using the Vidicon tube is about 12 by 7½ by 5 in., and one developed by Lockheed Aircraft Corp. is a mere 5 by 2 by 1¾ in. They can get into places where a man can't go, or doesn't like to go.

In underwater work such as dam-building, offshore oil drilling, pile-driving, and salvage, a diver can go down and look around, but there's a limit to how long he can stay. A TV camera on the end of a boom, however, can stay indefinitely.

In the case of oil well inspection, there's no choice. It takes a TV camera to go down inside the drill pipe or casing. Televue Inspection Co. of Odessa, Tex., has a camera and special lighting equipment, with a power source mounted in a station wagon. The outfit costs $24,000, is available for hire.

General Motors Corp. uses ITV to watch the spring action of cars under proving-grounds test (drawing, page 106). The camera is focused on the springs from a bracket under the bumper, and the monitor set rides in the back seat. It can also be mounted under the hood to watch engine parts in operation.

Ryan Aeronautical Co. of San Diego uses ITV to replace an experienced welder on some spotwelding jobs. Welders have to watch out that the copper-alloy welding tips don't pick up aluminum from the surfaces that are being joined. But in a big welding machine he can't see the lower electrode, so another experienced man, dubbed a "bird watcher," had to sit and watch that electrode. Now this man has been released for more productive work. A TV camera is trained on the electrode, and a monitor screen lets the welder spot his own troubles.

• **Steel Mills**—Like the steam power plants, the steel mills are a natural for industrial TV, and for the same reasons—heat, hazard, the discomfort that might make a man neglect an inspection

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that's hot and dirty. Again, TV saves manpower and prevents harm to expensive equipment.

At Republic Steel Corp.'s Buffalo plant, TV allows a man at the discharge end of a 14-in. bar mill heating furnace to charge the furnace at the entry end, 80 ft. away.

Inland Steel Co. in Chicago monitors slabbing operations and boiler water gauges; Great Lakes Steel Corp.'s No. 3 slabbing mill in Detroit gives the shearman a televised closeup of the slab and of a calibrated scale to make an accurate cut.

U. S. Steel Corp. uses TV cameras at three plants to watch the insides of open hearth furnaces, and several of its plants have sets aimed at the slab lines and reheating furnaces. At National Steel Corp., operators watch the slabs in the reheating furnaces to get an evenness of heat not otherwise obtainable.

TV helps in the mining business, too. Tennessee Coal & Iron Co. at Birmingham, Ala., employs a closed-circuit TV system to load and unload cars of iron ore and coal, remote from the operator. At Columbia Cement Div. of Pittsburgh Plate Glass Co., one operator can control the limestone crusher and supervise remote storage of material in any of five bins, all by closed-circuit TV.

• **Safety Monitor**—Where radioactivity is rampant, TV provides a safe close-up of an experiment. Combustion Engineering, Inc., of Windsor, Conn., has a typical installation to observe experiments at a test reactor. The camera can be panned and tilted by remote control from a shielded room.

The passenger ship Aquarama, plying between Detroit and Cleveland, is equipped with TV cameras to keep a fire watch. Monitors, and controls for fire doors are in the pilot house.

Aircraft companies and their suppliers rely on TV cameras to watch destruction tests of jet engines (where engines are overspeeded until they fly apart) and to help in flight tests. Lockheed mounts miniature cameras in such places as the landing gear well to check on vibration and on the opening and closing of the bay doors. It also pokes them into jet intakes, to inspect the mechanism and look for debris that might have been sucked in.

• **Traffic Cop**—Railroads are becoming big customers for ITV. Southern Pacific has equipped several yards, including Oakland, Los Angeles, and Houston, with ITV to record and coordinate freight car movements in the classification yards. These are still experimental, but railroad men are encouraged by the results.

Southern Ry. has ITV in five of its biggest freight yards and is reported thoroughly sold on it. The Louisville & Nashville RR is installing ITV at its



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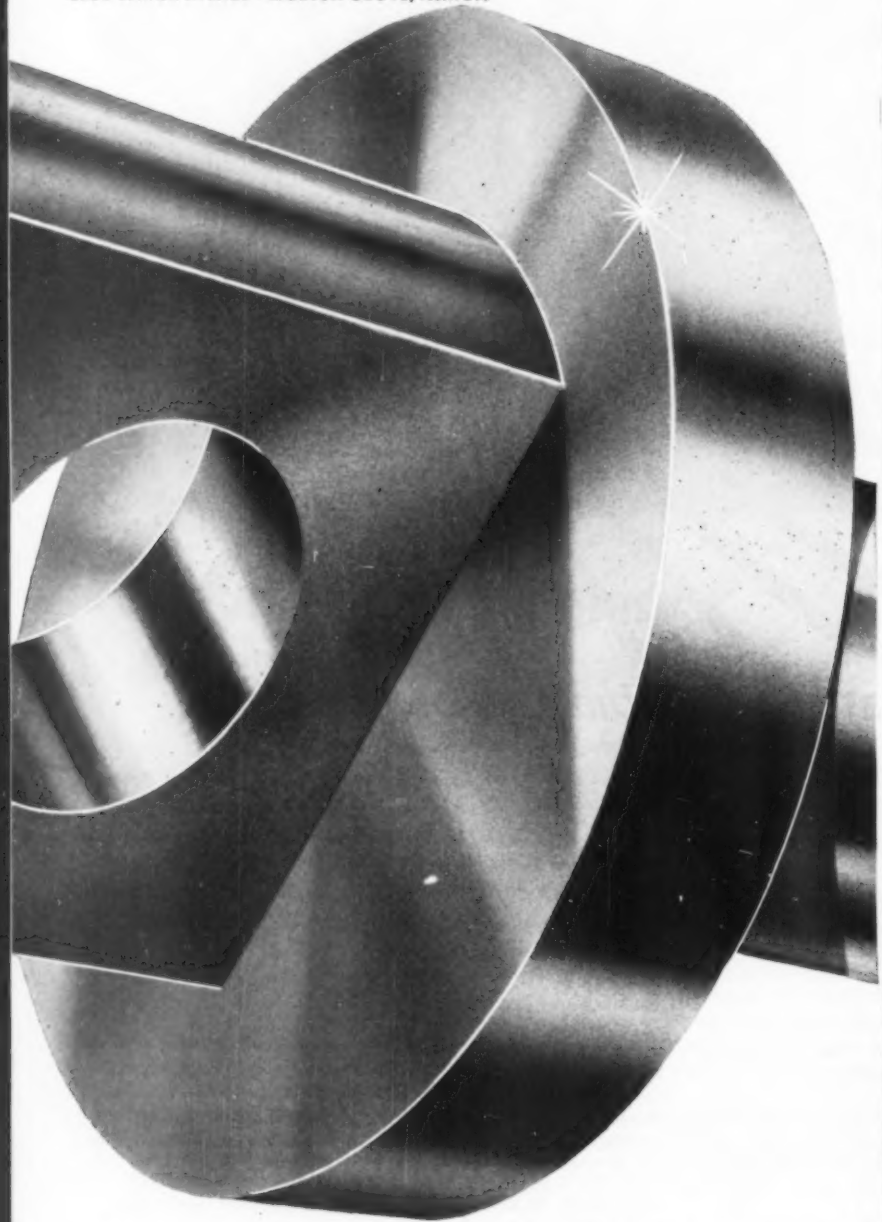
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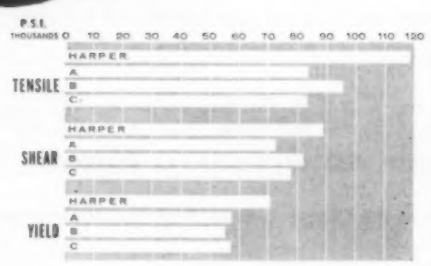
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*By R. W. Hunt Laboratories



Nashville yards. The Pennsylvania RR uses it at its Alexandria (Va.) yard.

TV works in observing and controlling other types of traffic, too. At the Zenith Radio Corp. warehouse in Chicago, the guard can inspect each incoming and outgoing truck, front and back, without leaving his seat before opening the door to the street.

The Palmer House in Chicago uses ITV to monitor elevator traffic for more efficient dispatching. In Tacoma, the Dexter Horton office building is built on a hillside and has two main floors; the upper level has an ITV camera to keep the elevator starter on the lower level apprised of his load demand.

At Coney Island, New York City's famous beach, one gigantic food stand called Nathan's often sells as many hot-dogs before 9 a.m. as some competitors sell in a day. Five ITV cameras are focused on the hundreds of feet of counters. When a crowd piles up in front of hot dogs, for example, the boss upstairs, watching the monitor screens (drawing, page 107), can call through a speaker system for help to move from pastrami sandwiches or softshell crabs to speed service at hot dogs.

• **Transmitting Data**—The biggest ITV system in the world is said to be the one Dage installed in Pennsylvania Station, New York. An array of 105 cameras and 103 monitors at ticket windows speeds the placing of reservations and the sale of tickets. The ticket agent merely dials a combination, and the entire reservation board for the date and train appears on the monitor screen.

Banks use closed-circuit TV to verify check signatures, bank balances, and loan cards from bookkeeping departments that may be the length of the building from the tellers' windows, or even on another floor. Users include the Bank of America branch at Burbank, Calif.; Pan American Bank of Miami, and the Houston Bank & Trust Co.; Texas National Bank, and First National Bank of Pasadena, Tex.

A New York stockbroker flashes quotations by TV from the main office to suburban branches (drawing, page 107). It's faster than ticker service, the firm says.

• **Security and Crime**—Security uses of ITV aren't limited to the military. A Burroughs Corp. plant in Detroit, for example, has a section where defense work is going on, and it is unobtrusively monitored by TV. On the screens, one guard can watch the whole floor area at once.

In the same way, one guard can watch all the gates of a plant, question all visitors and verify their identity before pushing a button that unlocks the gates (drawing, page 108). Philco Corp. in Philadelphia uses this system

to guard three classified areas where military work is under way.

In warehouses and stores, ITV is making a name for itself as a deterrent to pilferage and shoplifting. ITV makers claim their kind of surveillance of the store floors will cut losses by more than 50%. A dozen or more department stores have ITV systems; Gimbels in New York joined the list this month.

II. Problems to Solve

With all these examples of the virtues of ITV, equipment makers realize they still have many hurdles to leap before businessmen as a group are sold on their product.

In several of the cases already mentioned, for example, companies that adopted ITV have run into labor trouble. Unions objected to the savings of labor. One big West Coast company had to abandon the use of TV cameras for inspection of equipment because one inspector could do the work of many.

Even in guarding against pilferage, ITV aroused objections from unions. Some companies have found the money savings not worth the labor trouble. When cameras are aimed at production lines, unions often suspect that it's to check on the employees, rather than the process.

• **The Cost Factor**—Then there's the matter of cost—not only of the ITV camera and monitor sets but also of the coaxial cable to connect them. Many a budding sale has been killed by discovery that the connecting cable would be too expensive.

Besides, an executive who knows the cost of a discount-priced home TV set is often aghast at the quotation for an industrial set. He forgets the extra sturdiness, resistance to heat, shock, and moisture, and spark shielding that has to be built into the special ITV sets. Industry spokesmen say the cost will come down as volume increases.

Most cameras using Vidicon tubes start around $1,000 and work up to $20,000, and special equipment for color and unusual performance can go higher. Monitors can be had for about the same price as a home set of the same screen size, but cost can be as much as three times as much in some cases. The Pennsylvania RR is leasing its Penn Station system for three years for $400,000, with an option to buy.

The Tela Electronics Div. of Meilink Steel Safe Co. of Toledo has entered the ITV field with projectors to enlarge the TV picture. Electron Corp., a subsidiary of Ling Industries of Dallas, is making a camera that can be bought for $350 in kit form or $500 assembled (BW—Mar.23'57, p176). **END**

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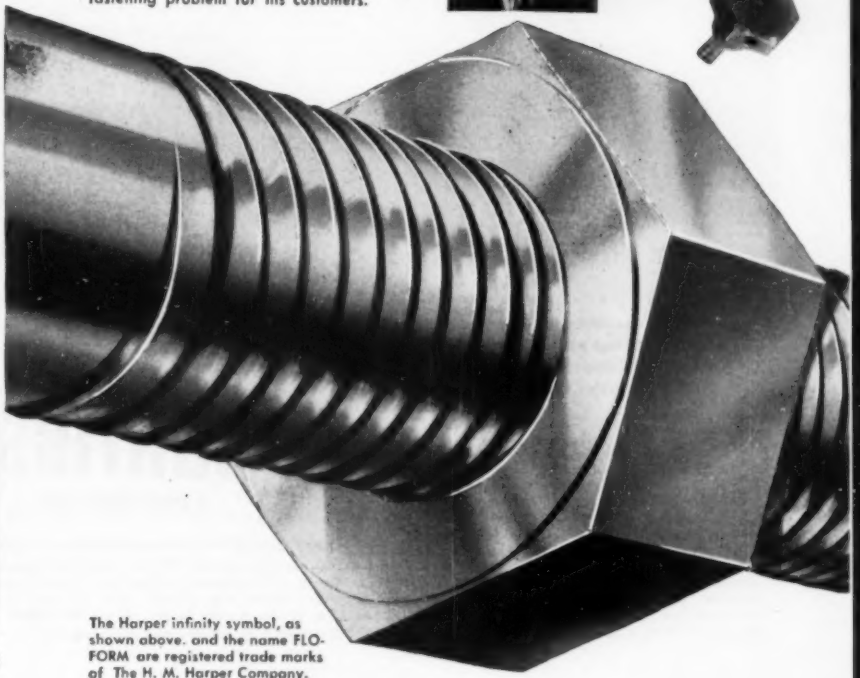
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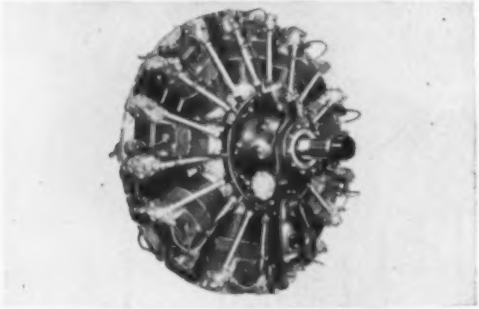
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The XC-99, the world's largest plane, is being ditched by the Air Force . . .



. . . even though it set 21 records for hauling cargo. It flies well, but is . . .

Too Big for Its Own Good

The trouble is the Air Force couldn't find hauling jobs big enough to match the plane's enormous capacity.

THE "ships in the sky" theme that science and aviation writers used to plug in aviation's headier days probably will never be more than a figment of these writers' imaginations, judging from the Air Force's experience with its huge XC-99.

After eight years of operational experience, the Air Force this summer puts its huge aerial freighter on the surplus equipment list.

• **Too Big**—The Air Force verdict: The thing was just too big.

Termed the world's biggest operational airplane, the six-engined, 300-mph. XC-99, with a range of 8,000 miles, was a success from the performance angle. It could carry 400 equipped troops or 100,000 lb. more economically on a ton-mile basis than any other Air Force plane. It had a wing span of 230 ft. and double-decked fuselage 183 ft. long.

It's a nice flying airplane, too. It can land and take off from nearly any mod-



B. F. Goodrich Company braids multiple strands of steel wire into intricate sinews around rubber tube to help control and resist tremendous internal pressures required of flexible hydraulic hose. Wire such as supplied by Johnson has tensile strengths ranging from 240,000 to 400,000 psi.



Firestone Tire and Rubber Company uses only high tensile steel wire of exacting tolerances in building tire beads. Rapidly entering the bead machine in parallel —three to fifteen wires wide, depending on strength specified—the wires are coated with rubber. Clean bronze finish on Johnson wire assures proper rubber adhesion.

The best names in rubber use Johnson wire for strength and safety in tires and hose

The rubber industry has a sound reputation for producing quality products in advance of its needs by use of imaginative research—painstaking development of production methods—careful selection and testing of component materials.

Goodyear—Firestone—U.S. Rubber—B. F. Goodrich—Thermoid and others have established their names over the years by giving the general public and industry alike—strength, safety and durability in products such as long lasting pneumatic tires and tough pressure hose.

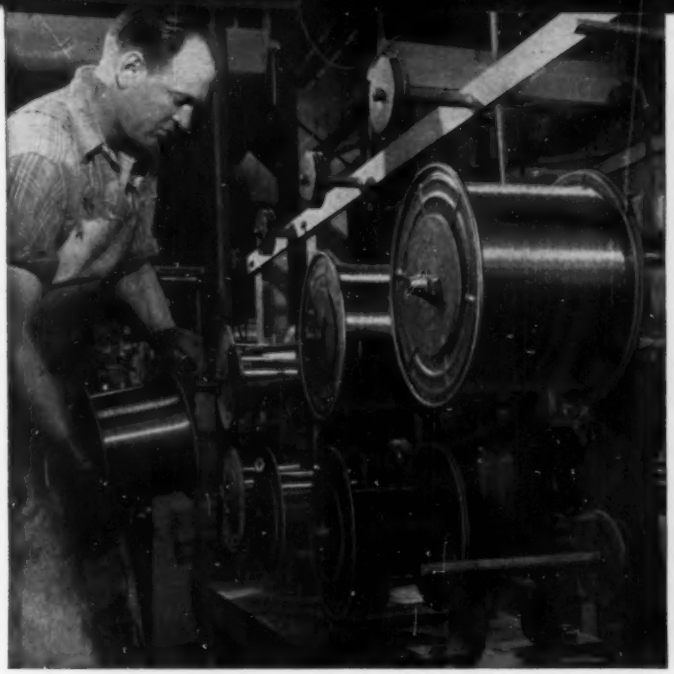
These two products owe their strength in part to the fine steel wires hidden inside them. For it is high-carbon steel bead wire which gives a pneumatic rubber tire—no matter what its size or job, the strength demanded by modern vehicles. Similar wire gives pressure hose its strong sinews which enable it to withstand working pressures as high as 10,000 psi—bursting strength may be three to four times as great.

Take the case of tire bead wire which Johnson supplies to every major tire manufacturer in the country. It is precision-drawn from special high-carbon rods to .037″ in diameter with a tolerance of only .002″—so fine that a 750-pound reel contains 39 miles of wire. Yet, a single strand exceeds 290 pounds of breaking strength equal to a tensile strength of 270,000 psi.

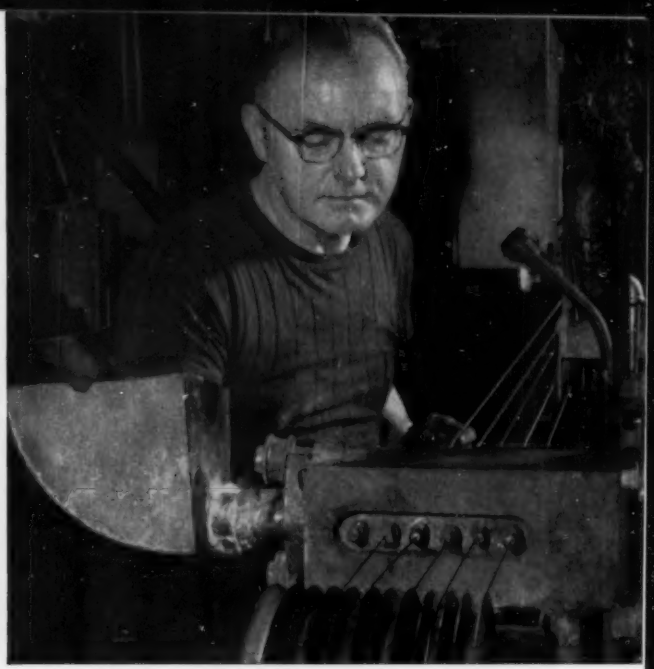
Also the wire must present a clean, unbroken surface and have a good and uniform bronze finish. This finish makes possible tight adhesion between the wire and the rubber surrounding it.

All these qualities contribute to the tire bead strength, help assure the safety of those who ride for work or pleasure on pneumatic tires.

Another special wire made by Johnson for the rubber industry helps rubber hose contain enormous pressures demanded by modern industrial applications. This reinforcing wire is drawn from selected high-



Thermoid Western Division of Thermoid Company has cut wire rewind loss to ½ of 1% by use of Johnson Discard-a-Spool which eliminates overlaps and tangles, protects wire quality in shipment. The one-way disposable spool weighs only 28 ounces vs 200 ounces for standard spool—slashes tare weight 14 times.



United States Rubber Company wires tires for strength on this bead building machine. The strength comes from the steel wire bead in the edge of each tire. Johnson makes special high-carbon steel wire—.037″ in diameter with tolerance of only .002″ for U.S. and other major tire companies.

carbon steel in diameters ranging from .008″ to .020″ and has exceptional dimensional accuracy—tolerance is plus or minus .0005″.

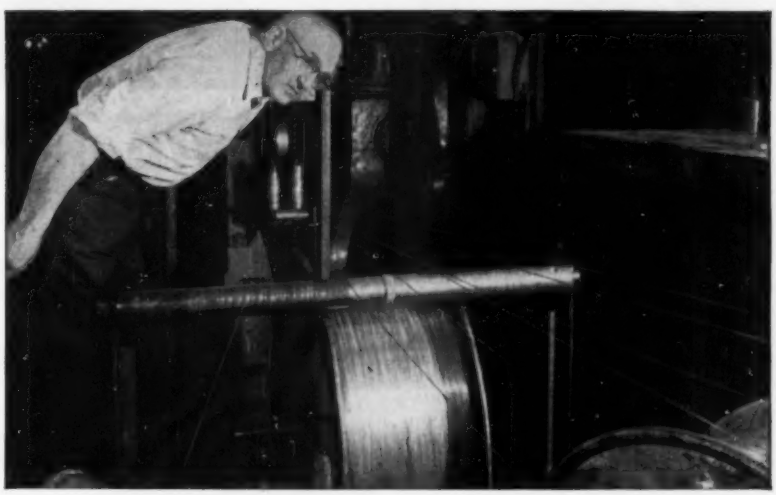
Johnson hose reinforcement wire is supplied with a special liquor finish to provide maximum adhesion of steel to the rubber which fills the interstices between braids.

The wire is uniformly cast to make possible even spooling and has uniform tensile strength to prevent breaking under the working tension.

These excellent wire qualities, plus careful packaging and prompt delivery, have resulted in Johnson becoming a prime supplier to the rubber industry for hose reinforcement wire.

The outstanding performance of Johnson wire in the rubber industry is typical of the experience in other industries where Johnson supplies aircraft cord wire, armature binding wire, wire for brushes, metal stitching, preformed staple wire, bobby pin wire, rope wire, oil tempered and MB hard drawn spring wire, and music spring wire in a wide variety of sizes and finishes.

If you use specialty wires, call one of the offices listed to right and explore the advantages of Johnson quality which combines strength with economy.



The Goodyear Tire & Rubber Company finds that Johnson meets their exacting requirements for tire bead wire which has high tensile strength, twisting strength, elongation and special surface finish. Here parallel tire bead wires uncoil evenly into a bead building machine.

Johnson Steel & Wire Company, Inc.

Worcester 1, Massachusetts

a subsidiary of **Pittsburgh Steel Company**

Grant Building • Pittsburgh 30, Pa.

District Sales Offices

Atlanta	Cleveland	Dayton	Los Angeles	Pittsburgh
Chicago	Dallas	Detroit	New York	Tulsa
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That's why they insist on safe, easy-to-use Dutch Brand Plastic Tape for every electrical maintenance, production and construction job. Available in the sizes and widths to meet every requirement.

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". . . the plane's capacity could make shambles of their best efforts to find a spot for it . . ."

STORY starts on p. 117

ern, paved air strip, carry from 60% to 100% more cargo than contemporary military transport planes, reverse its propellers, and back down nicely into tight flight line loading and unloading zones. Anybody who ever flew in it, thought it was great.

The problem with the XC-99 was keeping it busy.

The XC-99, which represents an investment of around $20-million, proved it could actually be made to pay if a good, solid cargo route could have been laid out. But it would have to be a long distance haul between two major terminals, with a guarantee of a sufficient volume of cargo on a long-term basis.

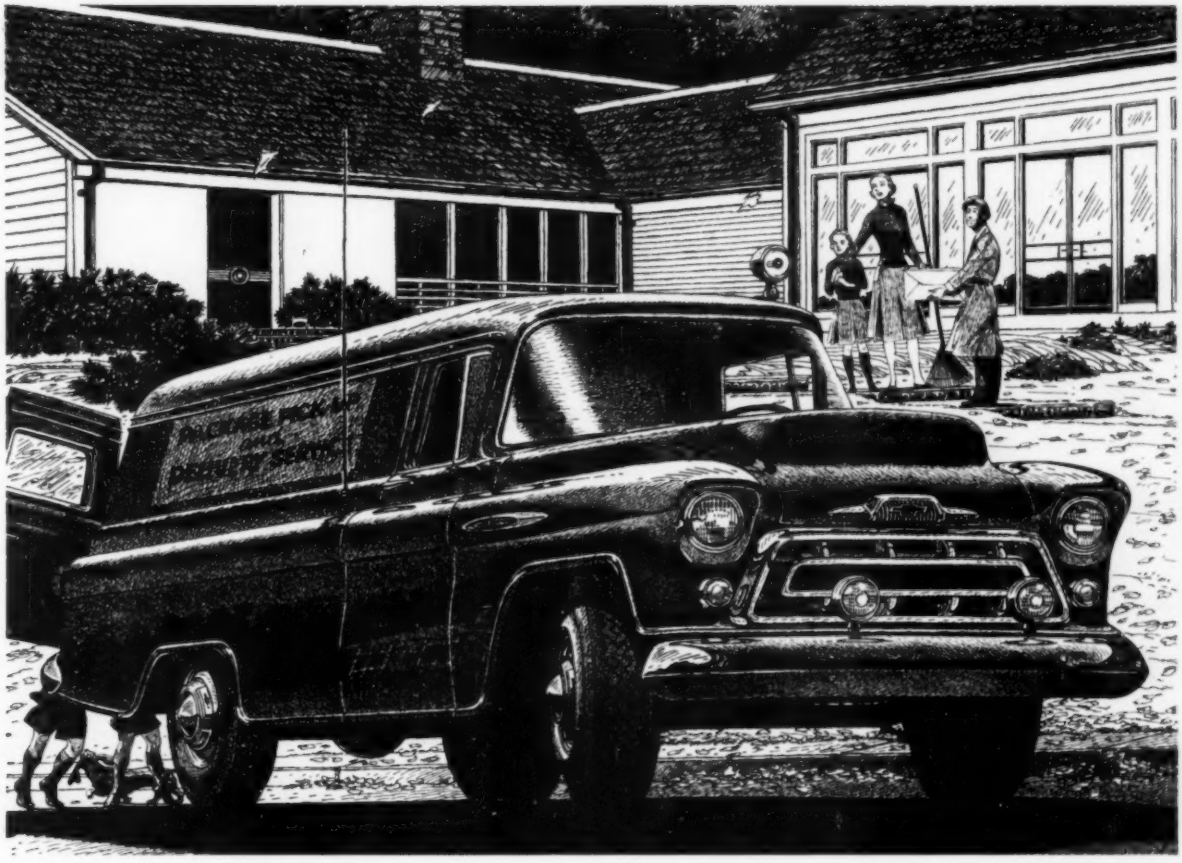
• **Unused Potential**—The Air Force, and several airlines interested in the XC-99's potential, discovered the plane's capacity could make shambles of their best efforts to find a spot for it:

• During the Korean War, the Air Force used the XC-99 to move airplane engines from Sacramento, Calif., to Korea. Its freight capacity was so great that it could clean out the terminals at each end in one flight—with room to spare in its cavernous insides. Overhauled engines just didn't accumulate fast enough in Sacramento or broken down ones pile up quickly enough in Korea to justify using such a big plane.

• Pan American Airways took options for three C-99 type airplanes when the Air Force transport first came out. The plan was to use them on the California-Hawaii run, carrying 204 passengers per flight. On further investigation, however, Pan Am found the three-plane fleet could move 150% of all the passengers then traveling to Hawaii by all methods of transportation. So Pan Am let the option lapse.

• **No Takers**—The plane's builder, Convair Div. of General Dynamics Corp., San Diego, also tried to interest the Post Office Dept. in the C-99. It claimed the plane could move parcel post more cheaply on coast-to-coast hauls than with any other form of transportation. In addition, the department would have space for sorting and bagging en route. But the C-99s represented too large a chunk of money, and besides the Post Office Dept. was not interested in running its own airline.

Convair also thought the plane could be used for hauling bulky perishable items, such as California lettuce to Eastern markets, but again no one in



All types of delivery trucks—with lots of starts, stops and curb idling—call for . . .

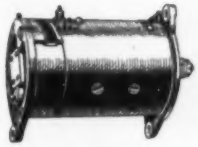
Delco-Remy Extra-Duty Electrical Equipment

to keep batteries charged

Milk route, bakery route, package delivery . . . any retail delivery truck can make a lot of extra demands on an electrical system. In some uses, engines are started repeatedly, perhaps fifty or a hundred times a day; in others, a lot of curb-idle engine operation is called for. Two-way radios may add further to the burden. Ordinary charging systems frequently fail to provide the extra power needed to keep the battery up.

Delco-Remy extra-duty d.c. generators have proved their worth time and time again in just such short run, stop-and-go service. Equipped with matching regulators, they assure extra electric power reserves, plus the substantial output at engine idle speeds necessary to maintain battery charge. Batteries are protected against excessive discharge and cycling effects, and last longer.

So be sure to specify Delco-Remy extra-duty electrical equipment, including the new longer life Delco batteries, on the new delivery trucks you order, and when you re-equip present ones. A wide range of both 6- and 12-volt a.c. and d.c. application packages is available.



Model 1106981 is typical of several Delco-Remy d.c. generators particularly suited for delivery truck operation. This economical 12-volt unit can produce 14 amp. at curb idle and reaches a maximum output of 40 amp. at about 18 mph.

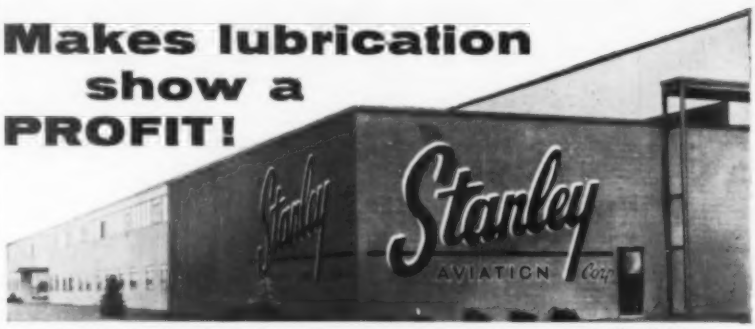
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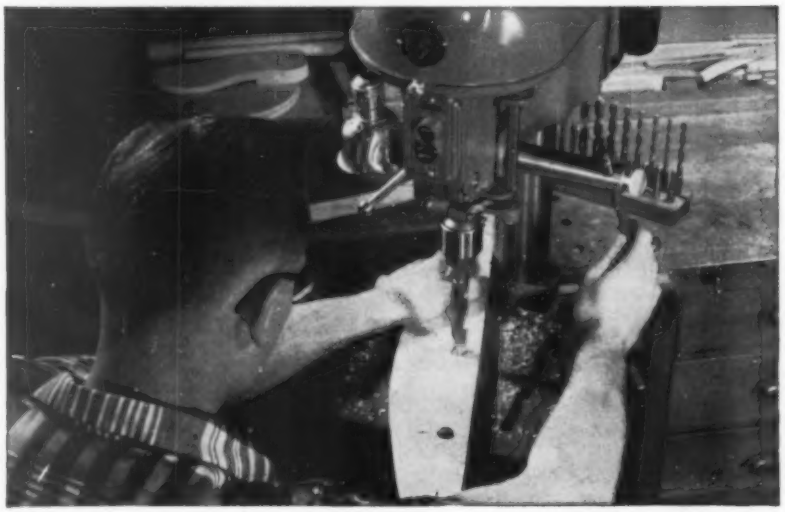
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NEW DRILL PRESS: low cost versatility

Latest addition to the world's largest drill press line is the new Rockwell-built Delta 14" Utility model shown above. Designed for small wood and metalworking shops, school shops, and home workshops, the new Delta 14" offers this important money-saving advantage: six interchangeable spindles make it possible to quickly and easily convert for countless operations, many of which normally require costly single-purpose tooling. While priced exceptionally low, it offers proved Delta precision, safety and convenience for years of dependable, trouble-free operation. For complete details, write:

ROCKWELL MANUFACTURING COMPANY
DELTA POWER TOOL DIVISION
5407 N. Lexington Ave., Pittsburgh 8, Pa.

". . . there is no practical limit to the size airplane that can be built . . ."

STORY starts on p. 117

the air freight business, or the lettuce business, wanted to make such a large investment.

Convair's assistant chief engineer, Robert R. Hoover, top man on the XC-99 project, sums up the case against the plane this way: "It just represents an awful lot of eggs in one basket." Basing its opinion on Convair's experience, the aviation industry generally feels that the XC-99 probably is the largest airplane that will ever be built.

Basically, the XC-99 is a transport version of the Air Force's last prop-powered bomber, the B-36, which also is being put out to pasture. The XC-99 had the same wing, power plant, landing gear, and tail surfaces as the B-36, but with radically different fuselage and cargo handling arrangements.

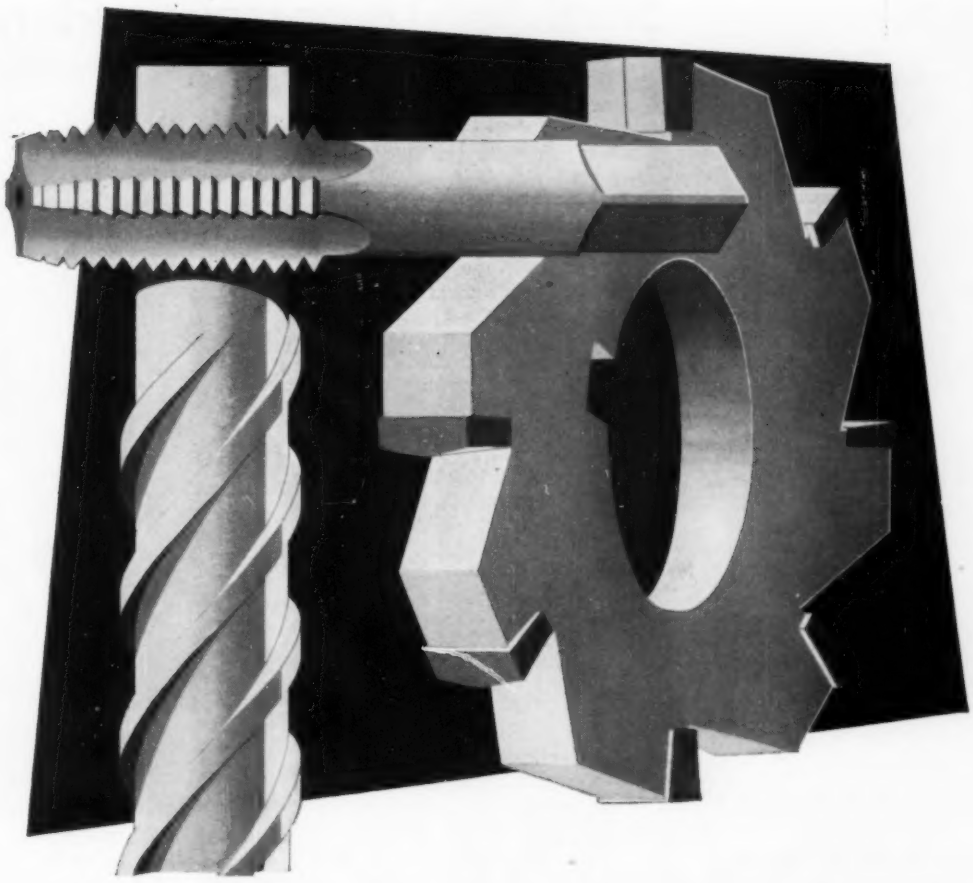
The contract for the XC-99 was signed in 1942, but work was suspended throughout World War II because the project was assigned low priorities. The XC-99 didn't get off the ground until 1949.

• **Record Holder**—But once in the air, the giant plane set at least 21 international records for cargo-carrying aircraft. During its four-year Air Force evaluation program, the XC-99 made 508 flights, flew 4,105 hours, 731,526 miles, and transported over 36-million lb. of cargo.

And technologically, the XC-99 demonstrated that there is no practical limit to the size airplane that can be built. An airplane three times—or five times—the size of XC-99 could be built, Convair officials feel. Economic feasibility, and airport size, however, would be even more of a problem here.

• **Major Contribution**—Probably the big transport's major contribution to the industry was the lessons it taught in cargo handling. The Air Force and Convair learned a lot about loading methods for big cargoes and about improving cargo tiedown devices. Other innovations the giant transport fostered are: the development of a system of internal cargo hoists, the use of cargo bins of about 400 lb. each—hoisted onto the second deck—for transporting the smaller items, and the use of the lower deck for the larger items such as aircraft engines.

These improvements paid off handsomely, the Air Force found. Its records show that the cost of airlifting cargo dropped from 26¢ per ton-mile to an average 14¢ as the new gear and techniques were put into effect. This last cost is about 40% less than any



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other military aircraft. An average ton-mile figure during the same period (1954) for the C-124 Douglas Globemaster was 23¢.

• **Other Ventures**—Besides the XC-99, there have been a couple of other notable attempts to get a really gigantic airplane in the air.

Best known is Howard Hughes' unsuccessful project. He built an eight-engined plywood freight-carrying flying boat, but it never could go much more than 30 ft. above the waters of Santa Monica Bay in glorified taxi-takeoff tests. This plane had a gross loaded weight of about 400,000 lb. and was designed to carry 130,000 lb., which makes it slightly larger than the XC-99.

And just last month, Martin Co. suggested a new eight-jet, bow-loading seaplane, with a gross weight of 500,000 lb. Cost of the 500-600-knot craft would be around $5-million to $5.5-million, Martin estimates.

Meanwhile, the XC-99 may end its career as a civic display in San Antonio. The citizens of the Texan city take pride in the plane because it operated out of Kelly Field in their city. They are negotiating with the Air Force to obtain the plane. Pending the outcome, the Air Force recently withdrew the giant ship from the surplus auction block.

PRODUCTION BRIEFS

U.S. Steel is moving into plastics. The cyclone fence department of the company's American Steel & Wire Div. has become the first steel products plant to produce glass fiber screening. The new screening will supplement the company's line of galvanized, bronze, and aluminum products.

•

Plans to tote oil by sea in bags made of plastic-covered nylon—an idea born during the Suez crisis—continue to make progress. A new British company, Dracone Developments, has been formed by the originators of the scheme to push the development of the "sausage skin" containers. England's National Research Laboratory also is maintaining its interest in the plan. The bags, towed awash, are to have a capacity of 9,000 tons.

•

U.S. shale oil reserves are bigger than previously estimated, according to the Bureau of Mines. New analyses of cores of oil shale beds show them to be thicker than reported earlier. As a result, estimated reserves in Colorado have been boosted from 1-trillion bbl. to 1.5-trillion bbl. Estimates for Utah and Wyoming have been raised another 35.6-billion bbl.

Steel for Tomorrow's Planes

Armco Steel Corp. is producing a new high-strength stainless steel for use in supersonic aircraft and missiles.

A VARIETY of today's materials are bucking for the job of cladding tomorrow's airplanes and missiles that will travel at four times the speed of sound—Mach 4. What's needed is a material that can take the 1,000F temperatures generated by the air friction at this speed of 2,700 mph.

Among the contenders rushing to adapt themselves to fill this need are a variety of stainless steel, titanium alloys, reinforced plastics, and the cermets (metal and ceramic combinations).

• **New Entry**—This week, Armco Steel Corp., Middleton, Ohio, introduced the entry it is grooming for the Mach 4 market—a new high strength stainless steel labeled PH 15-7 Mo. Armco reports that its new stainless steel, PH 15-7 Mo, is superior to the earlier versions because of its greater strength at higher temperatures and its greater creep resistance.

This new stainless can be heat-treated to strengths as high as 260,000 psi., and may have the jump on other aircraft materials as well as stainless steels in the race for developing suitable materials for supersonic aircraft materials.

These are some of its features:

• Its high strength helps balance its greater weight so that it is roughly competitive on a weight basis with the lighter, so-called aircraft materials in many applications.

• It is available in volume in all the common forms such as bars, billets, plate, sheet, and foil, at a cost of $2 a lb.

• It fabricates easily and can be brazed, lending itself nicely for use in honeycomb sandwich construction, which is so extensively used in military planes.

• Its ability to withstand a gradual deformation under a constant load (creep resistance), which is one of the top aviation problems, is good.

The new stainless is an alloy that is 15% chromium, 7% nickel, and about 2.5% molybdenum. It is a further refinement of two other stainless steels developed specifically for the aviation industry in 1948.

The chief advantages of these steels is that, unlike the then-existing chromium-nickel steels, they can be fabricated first and then hardened by heat treating. Formerly, the only way to harden stainless steels was to cold roll them first, which made fabrication difficult later on.



NEW AIRCRAFT STEEL is being produced in volume at Armco's Butler Works.

Titanium's low weight (about 60% of that of steel) and its high corrosion resistance also keeps it very much in the race for the Mach 4 market.

Once considered the "wonder metal" of the jet age, titanium is still trying to live down a subsequent reputation for being hard to work and prone to "hydrogen" embrittlement. Although these problems have been pretty well licked, the cost of titanium is still high. Titanium alloy sheet, for example, costs from eight to 10 times as much as Armco's new stainless steel.

• **The Market**—And, as engineers debate the merits of stainless steel vs. titanium for Mach 4 planes (which still are a long way off), aircraft and missiles are steadily increasing their consumption of stainless steel. Last year they were the second largest user of these steels, consuming $75-million worth. In the next five years, Armco expects the aviation industry to take $200-million as No. 1 user. For this reason, the company is spending $70-million to expand its Butler (Pa.) works. A new 54-in. hot strip mill and a new Sendzimir reduction mill for finishing 48-in. cold-rolled stainless steel will be built. END



OLD WAY—wastes profits



NEW WAY—boosts sales

More profit in nails—CORRUGATED boxes reduce handling, increase turnover

Ask 10 people to name a maker of nails, and chances are nine won't be able to—because nails traditionally haven't been sold retail as brand name items. But in these colorful corrugated boxes, they suddenly get new sales appeal with the brand clearly indicated.

Today's growing army of do-it-yourselfers is buying up nails in unheard of volume. But the poor retailers have far too often lost their profits laboriously weighing out small quantities for each customer.

These new corrugated boxes once more make it possible to sell nails profitably to retail customers. Handling is easier. Nails can be displayed better. Sales run higher. And probably for the first time customers are brand conscious of the nails they've bought.

Corrugated is ideal for this kind of packaging. Light in weight, it's sturdy enough to stand up under considerable rough handling. And the brand name or selling message can be easily printed on the sides at low cost.

If you sell a product in bulk, discover the greater profit possibilities of packing it in smaller units in colorful corrugated boxes. Talk with your nearby boxmaker. He's listed in your classified telephone directory under "Boxes—Corrugated."

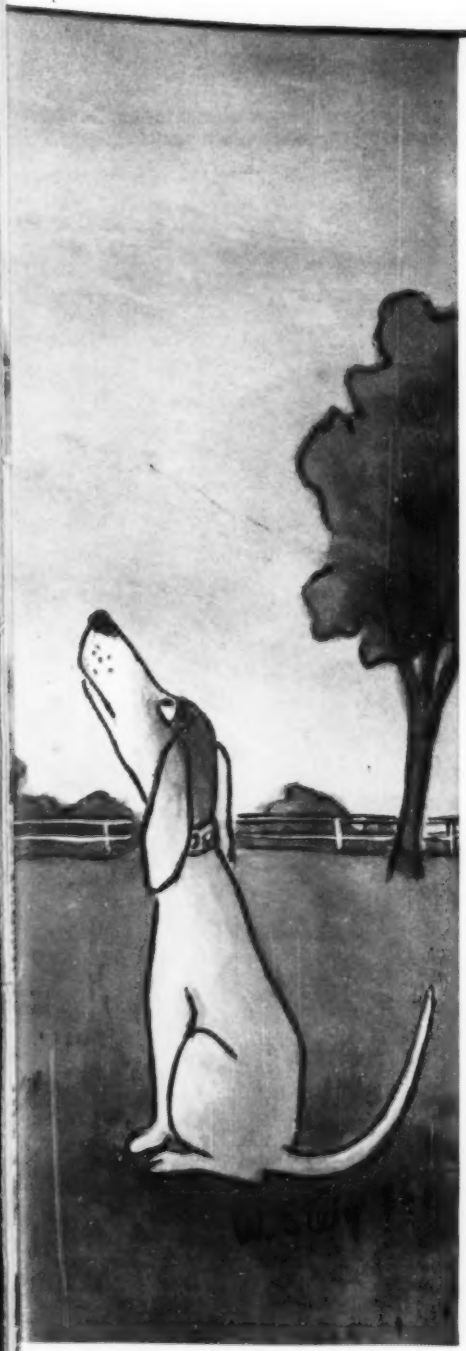
Langston doesn't sell corrugated, only the machines that make it. Since 1902, these machines have led the field in efficiency and dependability. *Samuel M. Langston Co., Camden 4, N.J.*

THINK FIRST OF CORRUGATED

LANGSTON Corrugated Container Machinery


"Looks
LANCELOT

like things have gone to the dogs, Lancelot!"



Lancelot: I'm afraid so, boss.

Man: But why?

Lancelot: Don't you know?

Man: All I know is I left the family a mighty prosperous business.

Lancelot: Boss, remember when you and I walked over to the office of that insurance man? The one from Equitable?

Man: Oh, my goodness!

Lancelot: And boss, do you remember what he said about that new kind of Equitable business insurance?

Man: Oh my!

Lancelot: How, between you and the lawyer and this policy, we'd have enough money to pay inheritance taxes without having to sell the business?
You said you'd call him the next day.

Man: Oh!

Lancelot: We had to sell the business—and at a big loss, at that—to get the money to pay those taxes.

Man: What can I do to make things right, Lancelot?

Lancelot: It's what you *could* have done, boss.

Man: Call the Man from Equitable?

Lancelot: It would have made all the difference.



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FREE BOOKLET — X 9

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Please send me Equitable's new booklet which explains how *Living* Insurance can help solve many common business and tax problems.

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MILLS MOVABLE WALLS



For more information on the newest and finest in movable walls today write for the 1957 Mills Catalog.



FINANCE

Reining In the Realty Syndicates

● Group ventures courting small investors multiply so fast that legal curbs can't keep all abuses in check.

● So real estate men are moving to police themselves through a code of ethics with teeth in it.

● But however regulations are tightened, realtors see high prices and tight money giving syndicates a boost.

The U. S. has never had an economic boom that hasn't eventually touched off a flurry of real estate promotions along with intensified securities speculation. Quite a few of the former—especially those aimed at smaller investors—have turned out more or less disastrously. The 1930s were kept busy picking up shipwrecked pieces of many of the real estate mortgage bonds and certificates sold in huge amounts to neophytes in the Roaring '20s.

The current boom is proving to be no exception. Already the small investor is being wooed by many a lurid claim for high-yielding real estate investment plans—through radio, TV, newspaper, and even bus placard advertising. On a higher plane, participations in larger real estate deals are being offered to an ever-widening circle of investors able to afford them.

• **Fashion**—The fashionable way to invest in real estate today is through a so-called "syndicate." Syndicates are group ventures formed for the purpose of making a joint investment in one income-producing property.

Once these were normally confined to limited partnerships drawn up within a close circle of well-to-do relatives and friends, and later, though they spread, were still restricted to the more sophisticated investors. But lately a flock of incorporated syndicates has sprung up to court the smaller saver with a nest egg of $1,000 or even less.

• **Loopholes**—While the securities investor is now relatively well protected by law, syndicated real estate investment has grown so fast of late that adequate laws governing some practices have not yet been evolved.

To qualify for interstate sales, deals must be registered with the Securities & Exchange Commission under the Securities Act of 1933. But if a syndicate sells only to residents of one state, it is exempt from this registration, even though the offering involves millions of dollars.

Many syndicates confine their operations to New York State, and must merely file with the State Attorney General. His office can now do nothing to block an offering, but it can apply for an injunction when a fraud has been committed, or when it can prove one is about to be committed.

This rather loose setup leaves many loopholes for abuses, and fast growth of this type of investment makes it hard for enforcement agencies to keep up, even with the weapons they have. Yet there have been crackdowns. The SEC last week enjoined one company from selling any more shares in a nonexistent "55-story Wall Street Building" in which some 100,000 shares had already been peddled to gullible investors at $1.75 a share. Several months ago the New York State Attorney General ordered five syndicates to offer investors their money back.

• **Volunteer Police**—In order to help plug the loopholes, the real estate industry this week is making an effort to draw up a rule book for self-regulation—a plan that would operate in much the same way that over-the-counter securities men police themselves through their National Assn. of Securities Dealers (BW—May26'56,p69).

The movement began with several meetings among a dozen or more of the larger syndicators in New York, who named real estate man Louis J. Glickman to speak for them. The current stage involves meetings with the State Attorney General's office regarding the setup of a self-regulatory body—though it wouldn't necessarily be limited to New York but rather would be nationwide.

• **What It Would Do**—The idea is so new that the proposed body hasn't even a suggested name. But real estate men are clear as to what it should do. They would have it empowered to examine proposed syndication deals to make certain all important details are fully disclosed, as they must now be under SEC-registered sales.

The body would not pass on the merits of an investment; it would simply certify the completeness of the syndicate operator's presentation, much as the SEC scrutinizes security underwritings registered with it. An investor would still have to make his own decision on the investment's value.

Here's what the real estate men believe a syndicate's prospectus should include. First, all relevant details of the syndicate operator's compensation, his expenses, any interest he may have in the property proposed for purchase. Then, of course, a complete description of the property's income-producing potential—with mention of any problems concerning mortgage renewal, length of tenants' leases and their renewal intentions, and status of negotiations with them and other prospective tenants.

New York's Atty.-Gen. Louis J. Lefkowitz promises that when the code is drawn up his office will check to make sure it complies with existing New York laws. And he has agreed to recommend to the New York State legislature any regulatory legislation he deems necessary to give it enforcement teeth.

• **Blast**—How big the loopholes are that the real estate men are trying to plug is indicated by a blast that came early this month from the New York City Better Business Bureau. The BBB took no exception to practices of most big syndicators (BW—Aug.24'57,p149) who require a good-sized minimum investment ($5,000-$10,000). Their offerings, usually registered with the SEC for interstate distribution, are subscribed to by a supposedly better informed clientele, who learn of the syndicate by word of mouth rather than through public advertisements.

The BBB turned its fire on certain offerings that are limited to New York State residents (to circumvent SEC full disclosure requirements) and that are advertised for public sale in units as low as $100.

The BBB's chief complaint is that many eye-catching advertisements of yields of 7%, 10%, and 12% or more are misleading. This, says BBB, is because "a substantial amount of (such 'yields') . . . amounts to nothing more than a return of the principal invested." In addition, there is little or no mention of the non-marketability of the investment. Unless the syndicate operators are willing to buy the units back or to help the seller find a buyer, owners may find themselves hard put to convert their holdings into cash.

• **What's in a 'Yield'?**—The confusion over yields arises from the nature of some offerings. The larger limited partnership syndicates involve simple ownership participations. But corporation syndicates generally issue debentures in small denominations, either with or without a share of stock.

The debenture, being merely a loan

When you're new to New Jersey...

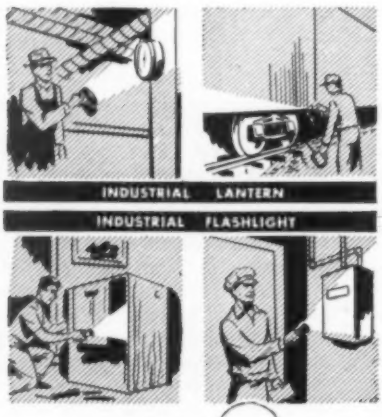
If your plans for future expansion include New Jersey, may we suggest that now would be a good time to get the "inside story" of this State.

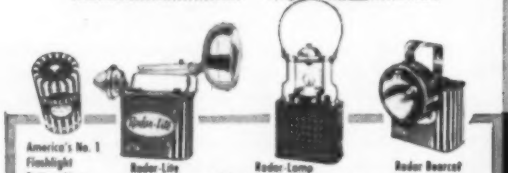
As one of New Jersey's oldest and largest banks, we can offer not only the complete banking services you need, but also an intimate knowledge of New Jersey and New Jerseyans. If you would like our representative to call, please write our Business Development Department.

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810 Broad St., Newark 1, N. J.
Member Federal Deposit Insurance Corporation

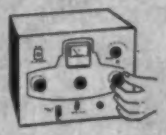
BURGESS BATTERIES *Power* THEM!

Uniform high quality and longer life are reasons why Burgess batteries are standard equipment in many complex electronic machines of our age. These same qualities, plus engineering know-how, fit Burgess batteries into everyday industrial applications. Illustrated are just a few of Burgess battery applications. Call on Burgess today!

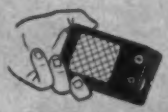





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NIAGARA FALLS, CANADA

from the investor, is gradually paid off. But in the advertisements, these returns of capital are often added to interest payments and dividends on the stock to make a big but highly misleading total "distribution."

The distinction between a return of capital and a true return on investment is one that escapes many small investors. And New BBB Pres. Hugh R. Jackson adds: "Even when the prospective investor is invited to secure an offering circular from the advertiser, there are instances where it is so artfully contrived as to confuse even a studious and informed person, much less an uninitiated and uninformed real estate investor."

The BBB also points to weaknesses in the debentures as investments—they are merely general obligations of the corporation, and so are subordinate to any later bank borrowing.

• **Danger**—Critics of syndication deals offered to the public at large see another potential danger. Frequently the syndicate operator arranges to make a profit from distribution of the issue, but thereafter has no part in ownership of the property. Hence he runs no risk—except to his reputation—if the property turns out to be a turkey. He may buy a property for $1-million, sell it to investors via syndicate for $1.2-million, and pocket the difference as his profit.

But another method avoids this danger; in such case, the syndicator may raise $1-million by selling investment units to the public, but create extra units that he retains as his own compensation. This gives him a pecuniary interest in continued profitable operation of the property.

In other less common variations, the syndicator gets his own reward only after the other investors have received their original investment back.

• **Action**—Because large amounts of money are involved in unregistered syndicate offerings (in New York, they usually range between $250,000 and $3-million apiece), the New York State Attorney General's office has given the problem special attention this year.

In July, Atty.-Gen. Leftkowitz ordered five syndicates to supply to investors vital information that had been skipped over at the time of offering—and also to offer to refund money to the investors. Syndicate advocates report that even after getting the additional information, none of the investors wanted the money back. The biggest case involved a $4-million apartment house sale in which the descriptive brochure failed to mention that the syndicate promoters were also the owners who were selling the building.

• **Future**—But whatever abuses may have crept in, and whatever form regulatory action by the real estate profession and the various states may take,



ARISTOLOY LEADED BOOSTED PRODUCTION 44%

Lubricating effect permitted faster feeds and speeds



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New Leaded Steel Catalog.
Write for your copy today.

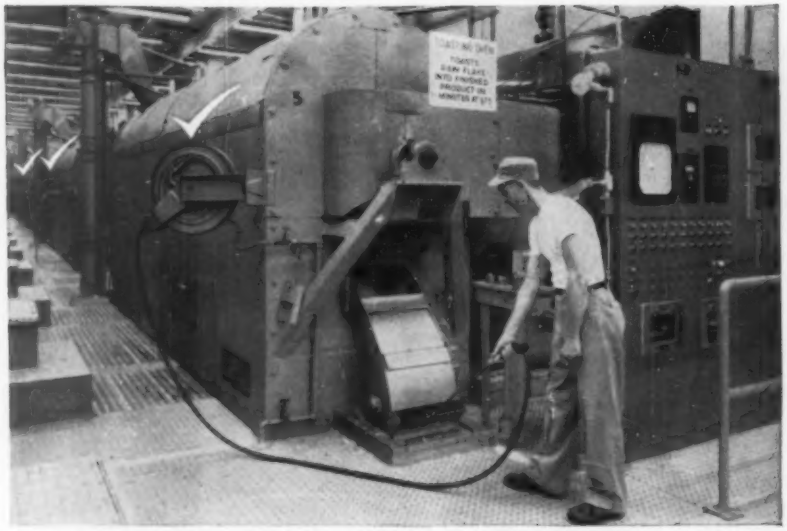
A simple switch from 52100 to 52100 leaded by Universal Engineering Company for this bushing permitted spindle speeds to be increased from 234 to 351 R.P.M. Machine speed was upped from 65 to 90 S.F.M. and feed from .004 to .006 I.P.R. As a result, production of bushings jumped from 89 to 130 pieces per hour. On another bushing, the same lead-treated material increased production from 87 to 124.

In hundreds of like cases, Aristoloy Leaded, the steel with "built-in" lubrication, has helped cut machining time, increased tool life and yielded better finished parts.

Today, Copperweld offers a complete line of leaded analyses and experienced field metallurgists who will be glad to work with you to determine the best Aristoloy Leaded for cutting your machining costs.

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ARISTOLOY STEELS



They killed all the "HOSE SNAKES" in the modern Kellogg plant!

Some production men call air hoses that come off a hook or lay on a plant floor "snakes" — they clutter up the place, present a safety hazard, and often require too much labor to handle.

The Kellogg Company of Battle Creek solved this problem by installing over 40 Graco Air Hose Reels in cereal processing departments. The Reels supply air for various important cleaning and maintenance operations.

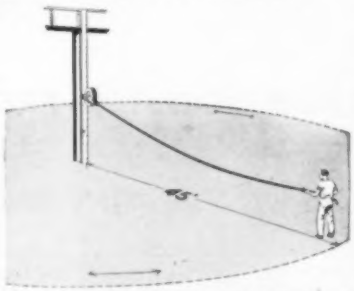
The Reels are mounted in convenient locations, as the photos show, and plant men can quickly pull out hoses for work within a 90-foot diameter from each reel. The hoses retract like window shades, smoothly and easily. They can be "latched" every two feet.

These sturdy Graco Hose Reels are widely used in all types of manufacturing operations for compressed air, oil, water and other light fluids.

Write for new literature on Graco Industrial Hose Reels, and ideas on how they may help your operation.



You can mount Graco Hose Reels easily on walls, ceilings, posts, supports, etc., for handy, yet out-of-the-way, outlets. Special Reel hose and packings for difficult fluids are also available.



Here you see the work area each Graco Reel can serve, 90 feet in diameter. In many instances, banked multiple Reels are used to supply a combination of air, oil, fluids, etc.

GRACO . . . Air-powered paint circulating systems, Powerflo and Fast-Flo drum pumps, Graco lubricating equipment. Sold through better industrial distributors.

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many realtors see a prospect of still greater growth for this type of investment. The use of legitimate syndication, they believe, will spread as long as prosperity continues. Their reasoning:

• Inflation has boosted the price tag on big properties so high that even wealthy individuals can seldom raise the millions needed to buy them. This group, which once provided the main market for such properties, has had its fortunes whittled down in recent decades by high taxes.

• Tight money has put a crimp in the practice common after the war of acquiring an expensive property with a relatively modest cash outlay and a big low-interest mortgage.

Consequently, real estate investors are tending more and more to band together into syndicates. One real estate expert estimates that already more than nine-tenths of the purchases of properties involving $2-million or more are made by syndicates rather than individuals. This includes practically all the big sale and lease-back deals now in vogue among corporations.

• **Advantages**—Investors also find some tax advantages in this form of investment. The practice of issuing package units combining debentures and common stock had its origin in this. If each unit has a high proportion of debentures to common stock—say 70% to 30%—each investor's proportionate ownership in the company is the same as if the capitalization were all in stock. But annual payments on the debentures constitute, except for interest payments, a non-taxable "return of capital."

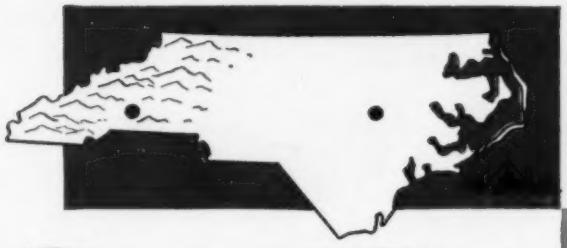
Limited partnership syndicates enjoy different tax advantages, one being that the depreciation is deductible on individual income tax returns. Because the syndicate is a partnership, each partner reports his cash income minus a depreciation figure that represents no real cash outlay on his part. In the early years of a new building, depending on the type of depreciation employed, the total income earned by a property may become tax-free through this allowance.

Many realty men expect the Treasury Dept. to step in before too long to prevent this tax loss to the Treasury—for example, by taxing the partnerships as if they were corporations. That would still leave for investors the attraction of the high yields available from real estate syndicates—some offering small-unit participations report yields around 8% on deals over a period of years.

• **Hope**—With the huge sums involved in the fast-growing business of syndication, and its attraction for investors, responsible real estate leaders are hopeful of results from this week's negotiations in New York—in the form of a satisfactory code of ethics, followed later by legislation to implement it and protect the novice real estate investor. **END**

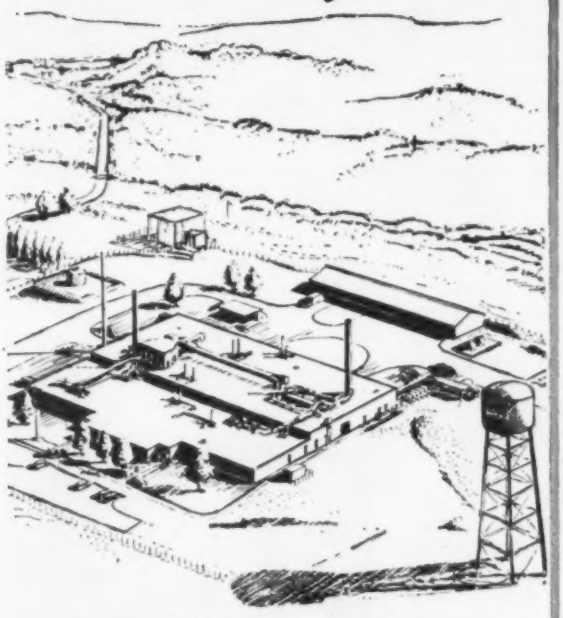
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Attractive to administrative and technical personnel in a friendly and welcoming atmosphere.

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Progressive industry-minded administration looking to the long range future.

"An important added appeal of our location at Brevard, N. C., is its attractiveness as a place to live. The moderate climate, the varied recreational areas, and the friendly welcome by the State and local people give us much to look forward to. These factors, we have found, play a big part in harmonious productivity and generally satisfactory operations."

Frederick H. Weismuller, General Manager, Pigments Department, E. I. du Pont de Nemours & Co.

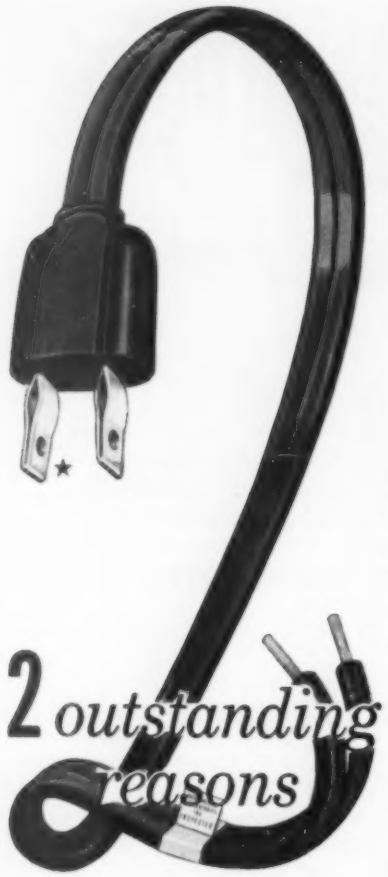
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Hanging Up on Southern Bell

Louisiana Public Service Commission, which cut phone rates drastically a while back, doesn't even set a hearing date for company's latest appeal for a boost.

Ever since the war, the companies that make up the Bell System have battered indefatigably on the doors of the state public service commissions, demanding permission to raise their rates.

To a very great extent, the demands have met a favorable response. The telephone companies have usually kept their demands within the bounds of realism, and the commissions have gone a long way to recognize the need for help in meeting enormous expansion expenses and rising operating costs, while maintaining fair earnings for the Bell security holders. Thus between 1952 and 1956, the parent American Telephone & Telegraph plus the units of its system have been granted boosts that amount to $361-million a year. In the early months of this year, another $3.5-million has been tacked on.

• **Setbacks**—Sometimes, though, the state regulatory bodies have proved balky. Of all of them, none has been balkier than Louisiana's Public Service Commission, now locked in battle with Southern Bell T&T.

This case history of company frustration began on June 30 last year, when the Louisiana commission ordered Southern Bell to reduce its rates on all local toll station calls and intrastate long distance calls. Southern Bell wailed and appealed, but got nowhere; last April local toll calls were cut to 5¢, long distance calls by about 20%. The new rates were made retroactive to the original order, and subscribers reaped a harvest of rebates.

Smarting from this unexpected wound, its first in years, Southern Bell decided to fight back. On Aug. 14, it petitioned the commission for an immediate interim increase of $7-million "to meet emergency conditions brought about because grossly inadequate earnings do not permit the expansion of telephone service in keeping with public needs." (Southern Bell says it earns 4.24% on its Louisiana investment.)

• **No Answer**—The commission has yet to reply. It met last week but did not even set a hearing on the request. However, some observers detected a hostile note in its order that Southern Bell keep separate from its operating expenses the accounts of the money it is spending on a drive to win public sympathy for the higher rates.

That drive is proceeding briskly, with page ads in most of the state's daily and weekly newspapers to explain the company's position. Mostly, the appeal is aimed at the increasing industrial development of the state, and the tremendous growth of local and in-state calls. Southern Bell claims that with the present rates it cannot increase local services or meet the booming demand for new private and business installations.

• **Who Gets Profits?**—The commission poohpoohs this, charging that the parent AT&T has consistently drained off an inordinate share of Southern Bell's profits. And the commission argument that Southern Bell should plow back more Louisiana profits into Louisiana expansion meets with considerable public sympathy.

A good deal of the public seems to view the wrangle with apathy, as a hopeless cause. One taxi driver summed up this view neatly: "Southern Bell has got the only wheel in town. We pay the raise and we get service. We don't give them a raise and they louse up communications."



FDIC Chief Departs

At the age of 71, H. Earl Cook left the Federal Deposit Insurance Corp. last week at the end of his term as chairman. In banking since he got a messenger job in his home town of Bucyrus, Ohio, at the age of 21, Cook still believes he's too young to retire. In November he joins Wall Street's E. F. Hutton & Co. as manager of its bank underwriting department, with headquarters in Kansas City. Cook was a director of FDIC, for 10 years, and its chairman since 1953.



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The honesty and selflessness of the daily newspaper, its energy and inquisitiveness, is a perpetual assurance of our national stability and individual rights. Its freedom of action is its strength.

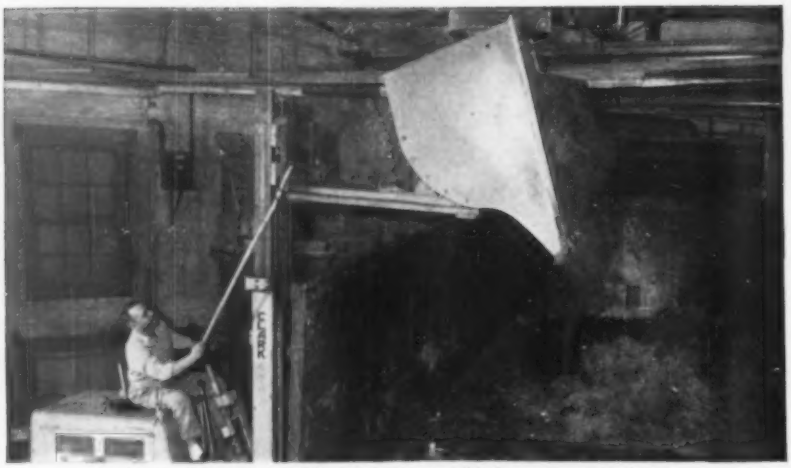
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American Rivet Co., Chicago, replaced oil drums with 15 Roura Self-Dumping Hoppers for collecting metal scrap. These Hoppers, labeled to indicate the type of scrap they contain, are stationed in the machining areas. Chips and turnings, collected in tote pans, are emptied into the Hoppers. When full, a standard lift truck moves the Hoppers to the loading dock. The operator merely flips the latch and the Hopper automatically dumps its load into the dealer's truck, then rights itself, locks itself and is ready for another load. One man does the entire job. Scrap, segregated by type, brings higher prices. Handling costs are cut to the bone.

Perhaps Roura Self-Dumping Hoppers can cut costs and save time for you, too, in handling hot or cold, wet or dry bulk material. When there are problems of contamination or corrosion, stainless steel or stainless lined hoppers can be supplied.

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For good business housekeeping is largely a matter of good File-keeping.

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FINANCE BRIEFS

New state and municipal bond sales in the first eight months of 1957 totaled $4.5-billion for a new record, The Daily Bond Buyer reports. The number of such flotations hitting the market in August—$575-million—also set a new high for that month.

•

The net savings inflow of the nation's savings and loan associations skidded $329-million under its 1956 level in January-July, 1957. New share sales, according to the Federal Home Loan-Bank Board, rose only 5% while withdrawals expanded 18% in the same period. July withdrawals actually exceeded new money receipts by $87-million, the first deficit recorded for any July since 1950.

•

Prudential Insurance Co. will make $1.25-billion in new investment purchases in 1957. About 60%, or $762-million, will go into mortgages; $417-million into bonds; $69-million into "small business and industry loans," reports Pres. Carrol M. Shanks. (Prudential's mortgage holdings at the end of 1956—$5.7-billion—accounted for 43% of its assets.)

•

Sales of chemicals and allied products will total $25-billion this year, the American Chemical Society estimates. The trade's capital outlays, it says, will run about $1.8-billion, with 71% of those going into expansion.

•

Business loans granted by New York City's larger banks rose $34-million last week, making the total of such loans outstanding $11.8-billion. Since midyear, however, such outstandings have slumped $282-million, compared with a rise of $389-million for the same period in 1956. As a result, by early September, the business loan total was only $357-million higher than it was at the start of 1957—whereas, by this time last year, the increase in such loans was $1,387-million.

•

Net profits of the leading New York banks jumped 21% in the first half of 1957, compared with their 4.5% rise in the first six months of 1956. The New York Federal Reserve Bank says this profit gain was caused by the substantial increase in holdings of commercial and industrial loans. Industrial loans, it reports, rose 18% above 1956, compared with an average rise of 12% by all Fed member banks.

•

Chemical operations of National Distiller's & Chemical Corp. will produce some $22-million, or 40%, of all of its operating profits, this year, a company official says.

CUSTODY

Executives Cut Down Risks and Save Time by Using Guaranty's Custody Service







Corporate executives must assume personal liability in the physical handling of a corporation's portfolio; they face hazards and lose valuable time. Through use of Guaranty's Custody Service, however, executives can be freed of responsibilities and risks. Handling of securities can be accomplished as easily as writing a check.

When you consider the expense, the risks, and the executive time involved in the physical handling of a company's portfolio, it is not surprising to find that more and more corporations are turning to the formal Custody Service offered by Guaranty Trust Company of New York.

The corporation using this service retains ownership and complete control of the securities deposited, and the important and essential elements of protection are provided, yet the sale, transfer, exchange, deposit, or other activity involving securities can be attended to as easily as writing a check.

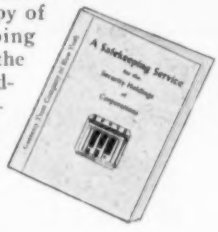
Charges for the Custody Service are moderate and when related to taxable income are deductible as an administration expense for tax purposes. Out-of-town corporations gain additional savings by eliminating the expense of shipping securities to and from New York.

Here are some of the services Guaranty renders as custodian of securities:

- **Collects Income** from securities held; prepares and executes Federal income tax declarations covering interest and dividends received.
- **Collects the Principal** of matured and called investments.
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- **Notifies Customers** in advance, whenever possible, of any news concerning holdings — stock options, privileges, dividends, and other information.

Guaranty's Custody Service puts at your disposal a staff of 300 officers and employees experienced in handling the security portfolios of over 5,000 banks, insurance companies, business organizations, and individuals.

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Early Starter Bets on a Boom in

Dr. Chauncey Starr (above) states the faith of North American Aviation's Atomics International Div. in its field. Ready for a big chunk of reactor sales, AI now rivals giants.

WHEN ATOMIC POWER is commonplace around the world, North American Aviation, Inc., hopes to be in a position to profit mightily from the business of selling and servicing the reactor equipment that goes into atomic power plants.

Toward that end, it has spent 11 years establishing a foothold in the tricky atomic energy industry, under the guidance of Dr. Chauncey Starr (cover and pictures on these pages), North American's vice-president and general manager in charge of its Atomics International Div. By this time, Starr is able to reflect pleasurably that his virtually autonomous division challenges such blue-chip giants as General Electric and Westinghouse for leadership in the atomic reactor and equipment field.

• **Exploits in Atoms**—But there has been little time for quiet reflection in the Southern California offices of Atomics International. By ticking off the division's solid accomplishments in its 11-year life, it's easy to understand why:

• Five of its research reactors have been operating in California for some years.

• It constructed the first privately owned industrial research reactor for the Armour Research Foundation of Illinois Institute of Technology in Chicago.

• Last week it announced that the prototype of its cheap ($55,000) laboratory research reactor was running satisfactorily.

• Overseas, an AI research reactor is in use in Denmark, and another went "critical" last month in Japan. Germany will have two more operating soon; next year still another will be ready to go in Milan, Italy.

• On the power front, an AI reactor of the "sodium graphite" type is already delivering 7,500 kw. of electricity to the Southern California Edison Co. in Santa Susana, Calif. It is the scale model of a 75,000-kw. plant to be built for the Consumers Public Power District of Nebraska as part of the Atomic Energy Commission's demonstration program for nuclear power.

• This fall, AI expects to sign an AEC contract to build a reactor of the "organic moderator" type for the city of Piqua, Ohio, where it would heat steam for a power plant with installed capacity of 12,500 kw.



"It could come about in the decade . . .



. . . with the right kind of government aid."

Atomic Power

• If the Piqua reactor works right, the division will sell a similar reactor to American & Foreign Power Co., probably for installation in Mexico.

I. Beginning the Long Pull

Despite all this activity, Atomics International is not at the moment a profitable venture for North American. In fact, it's not now profitable for anybody to build atomic reactor equipment. It will probably be another decade before any money is made. Starr's hope for the immediate future is that AI can break even. In the meantime, he clings to the conviction that eventually AI's early start in the field will bring rewards.

• **The Way It Began**—This dedication to the promise of the atomic frontier has been with AI since the beginning. It started modestly in 1946 as a 15-man atomic energy group headed by Starr, with an assignment to investigate the possibilities of nuclear power for guided missiles. The group quickly decided this was not then a desirable program for North American to undertake. Instead, it recommended that the company's board of directors back studies of the peacetime use of atomic energy in research and power reactors.

When North American decided to make a debut in this department, it was in a different position from companies such as Westinghouse and GE. "We had to call our shots carefully," says Starr. "We weren't rich enough to buy our way in."

• **Research and Power**—The company's first valuable experience came in building research reactors of the water boiler type for AEC. Gradually, it evolved two types of research reactors for sale:

• A reactor of the "solution" type selling for $250,000. As fuel, it uses uranyl sulphate enriched by fissionable U-235 in a water solution. This is the



BABY REACTOR for research use has just gone "critical" at AI. It sells for $55,000.

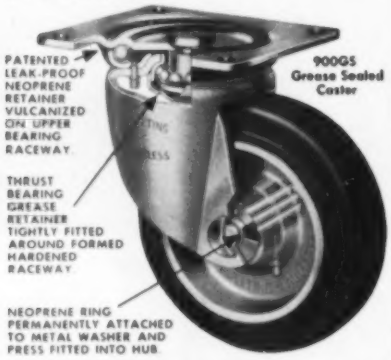
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type sold to Armour Research Foundation and to Germany, Denmark, Italy, and Japan.

• A cheaper reactor, priced at $55,000. Successful operation of this model was announced this month.

North American's atomic energy experts also developed two principal sorts of power reactors:

• The sodium graphite reactor, which employs liquid sodium as a cooler and graphite as a moderator. This program began in 1948 when AEC asked the study group to examine ways to produce both power and low-cost plutonium. By 1952, North American was confident enough of the sodium graphite combination to sink its own funds into the project.

• The organic moderator reactor, in which an organic material acts as both moderator and coolant. The material is a carbon-hydrogen compound such as diphenyl (carbon and hydrogen are both pretty good moderators). As moderator, it slows the neutrons produced in the process of atomic fission, and as coolant, it circulates in a liquid state through the reactor core to absorb heat and carry it outside to heat exchangers.

• **Two Roads**—The sodium graphite and organic moderator reactors are only two of the seven different reactor types included in the AEC's five-year program to develop scale-model prototypes of nuclear power plants, launched in 1954. But they are the only two that have been a private company's babies from the beginning. Four of the others were hatched in AEC national laboratories; the pressurized water reactor was a joint project of Westinghouse and the AEC at the latter's Bettis plant.

II. Ahead of the Pack

Two years ago, Starr and his group had made so much progress that North American established them as a separate division of the company, Atomics International. This was a signal that North American was ready to tackle world markets. By now, the original 15-man force has expanded to 1,600, half of them technical personnel.

All five of the reactor programs from AEC labs have given birth to parallel projects in private industry. But sodium graphite and liquid moderator reactors are still AI's exclusive province. And Starr thinks his two specialties are several years ahead of other approaches to atomic power, because North American had enough faith to plunge in early with its own money.

Because of their advanced development, AI regards its two power reactors as good bets for early sales. The organic moderator variety is designed to meet relatively small requirements for power, and it is in situations such as these where Starr expects a market for atomic power to develop first, because they involve less investment and risk for the pioneer. And the sodium graphite reactor is versatile enough to fit in both the intermediate power range and the "unlimited" class.

• **Going to Work**—Starr's division is optimistically exploring another application of the organic moderator reactor—as a power plant for ships. In this field, Starr says it has advantages over other types in safety and maintenance. AI has completed a design study for a supertanker powered this way.

But it is on land that AI has its customers already. Its reactors will be used in two of the projects so far approved in the AEC power demonstration program—the sodium graphite reactor in the 75,000-kw. Consumers Public Power District of Nebraska plant and the organic moderator reactor in the 12,500-kw. layout for Piqua, Ohio. The Nebraska reactor will cost the district and AEC $24-million; the bill for Piqua's reactor, including fuel elements, will be about $5.1-million.

Starr considers the Piqua-sized reactor adaptable as a power source for many isolated communities such as mining camps and the like. Electricity from this type of reactor now costs 18.5 mills per kwh. (compared to an average of 6 to 8 mills for juice from power plants using conventional hydrocarbon fuels), but this is no more than many countries in the world now pay for power. Power from the sodium graphite reactor in the Nebraska project is expected to cost 12 to 14 mills per kwh., but the cost would be less if the plant were larger.

• **Lofty Aims**—The Piqua and Nebraska jobs will give AI valuable operating experience. Starr makes it no secret that AI's goal is to snare the big power plant business. The division has made proposals for power plants abroad of up to 150,000 kw. Plainly, the sale of research reactors—particularly the $55,000 model—is a temporary expedient.

III. How to Sell a Reactor

But selling the smaller research reactors does give AI salesmen worthwhile experience. They learn how to deal with governments and to thread through the maze of controls affecting atomic energy. They learn also to allay the fear that mingles with interest in the atom in some parts of the world. And, of course, they establish the name of Atomics International in the nuclear reactor field.

• **Rivals**—Building AI's name is important because there are so many entrants in the race for reactor business. The competitors include:



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Chief among these, in AI's view, are GE and Westinghouse. In order to buck them, Starr says, the division will have to develop atomic power equipment that is dependable and economical enough to interest the utilities—something no one has accomplished yet, he adds. AI, as a relative newcomer in the power business, must also win the utilities' confidence. At the moment, it ranks a hard third among the reactor makers—but Starr says it would be about on a par with GE and Westinghouse if they didn't have military business.

• **Diversified Goals**—AI's ultimate aim is to manufacture and sell all the nuclear equipment for a steam power plant and to procure by subcontract components such as pipe and generators that others can fabricate better. But besides the power plant business, the sale of research reactors, and the supertanker studies, it's exploring several sidelines:

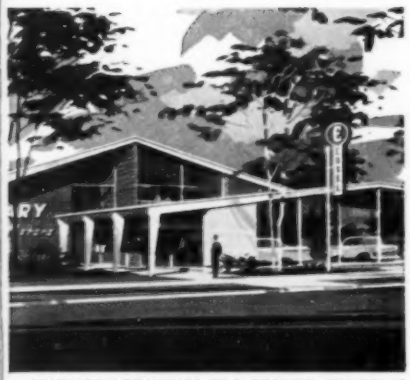
• Technical services, such as the manufacture of fuel elements for reactors. It would do this for other reactor builders, as well as for utilities.

• Reprocessing reactor fuel slugs, which must be replaced about every three years. AI is investigating a new method of chemical reprocessing to withdraw the substantial quantities of uranium remaining in a "spent" fuel slug and transfer it into a new fuel rod.

• The use of radiation from the reactor, which is now wasted. AI has been studying ways to preserve food by radiation for the Army Quartermaster Corps. On a larger scale, Starr thinks a whole new technology may develop around radiation. He envisions a network of industries built around a reactor that would provide power, steam, and radiation for the plants. Conveyers would bring food, manufactured goods, chemicals—or whatever—into the reactor to receive radiation and then return them to the factories.

• **Sales Tricks**—The sales effort that goes into pushing this dream of diversified business toward reality is unorthodox in several respects. It doesn't fit handily into any textbook version of salesmanship. Rather, it's a blend of applied engineering and diplomatic negotiation. First, it's necessary to measure a situation, then propose technical details to meet the problem. But it's also often necessary to enter into complicated negotiations with





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Theoretically, AI's director of technical sales is in charge. But AI's senior staff officers are all salesmen, too; Starr himself is one of the best. He has traveled to Europe and the Far East to talk with prospects in research institutions, governments, universities, and the like.

• **Berlin Story**—AI's sale of a research reactor to Berlin for the Institute of Nuclear Research is an example of the selling problems it faces. The reactor was purchased to train students at the Free University of Berlin and the University of Technology, and AI's first contacts were with West Berlin's local government. But it also had to do business with the combined allied command that rules West Berlin. Then, after the technical details of the sale were completed, it was up to the buyers to arrange supplies of enriched uranium to run the reactor. This took the joint efforts of AI, the Berlin command, the AEC, and the State Dept. before the necessary legislation emerged from the U.S. Congress, allowing export of enriched uranium to West Berlin.

• **On U.S. Shores**—There were even more complications in the deal to sell Piqua, Ohio, an organic moderator reactor for 12,500 kw. of power.

When the AEC began the second round of its nuclear power demonstration program, Piqua (population, 18,000) felt it qualified ideally as a guinea pig. Its 24-year-old municipal power system is completely self-contained; there are no interconnections with any other utility. And it is a big supplier of steam for industries in the area.

Before submitting its proposal to AEC two years ago, Piqua met with representatives of five reactor makers—Alco, GE, Babcock & Wilcox, Combustion Engineering, and Atomics International. Piqua officials say they chose AI's reactor because it would tie in with existing power facilities and because it seemed safest and most economical. It could replace boilers installed in 1933.

• **Expensive Power**—From the cost standpoint, atomic power is no advantage to Piqua. Under its present system of burning low-cost coal, electricity comes to about 5.5 mills per kwh., against an estimated cost of 18.5 mills with the reactor. This caused some trouble in legislative hearings on the proposal, but the community was able to argue that as power needs rise, it cannot continue to use cheap coal. Besides, it hopes the present cost estimates for atomic power are too conservative, and, anyway Piqua is a good experiment for the AEC because of its location and the kind of customers the system serves.

So the deal finally took shape. AEC



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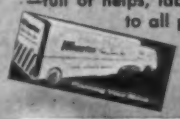
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will pay AI $5.1-million for the reactor, and the city of Piqua will put up $4-million for the site and buildings. AEC will also bear $7.1-million in research and development costs.

In the final setup, Piqua will be buying steam from the AEC, which will own and operate the reactor, at the same price it now pays for steam heated by conventional methods—about 2.88 mills per kwh. Steam will be piped from the reactor 500 to 600 ft. to the main electric generating plant, which will also use steam from conventional hydrocarbon-fueled plants.

Before this transaction could be completed, there were tangled negotiations between AI, the AEC, and Piqua, to say nothing of the Congressional hearings necessary to allow spending federal money.

• **Affiliate Abroad**—To help promote sales overseas, AI is exploring various ways to establish business links with foreign countries. It has already signed a mutual technical assistance agreement with ASEA, a Swedish maker of boilers, turbines, and generators and builder of complete power plants. Although the details are still under wraps, the accord amounts to a sort of gentleman's agreement to participate in joint ventures. In some areas, they might submit a joint proposal for an atomic power project. In others, they might bid separately—ASEA for the conventional equipment, AI for the nuclear.

IV. A Peek at the Books

But the final contract with Piqua, giving the go-ahead signal to the project, has still to be signed—although it is expected sometime this month. It's clear that atomic power equipment isn't big business yet. In the meantime, how does AI stand financially?

North American won't release precise figures on its child. But the company's vice-president and treasurer, R. A. Lambeth recently told security analysts that AI "would almost break even in 1957." Its revenues, so far fairly modest, come from research and development programs for the AEC, from its radiation studies for the Quartermaster Corps, from the sale of reactors, and from such services as selling fuel elements and running training programs once a reactor is sold.

On the other hand, the company has put $2.5-million into the sodium graphite reactor and $750,000 into the organic moderator model. It also provided most of the financing for development of the AI research reactors—both types of which are being sold at a loss. On the power reactors, however, it should at least break even.

At its headquarters in Canoga Park, Calif., AI owns a $1.5-million building, with 136,000 sq. ft. It leases another

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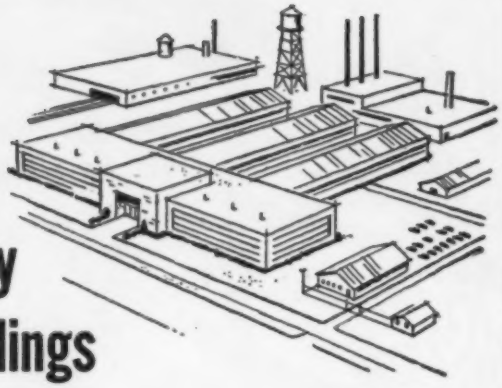
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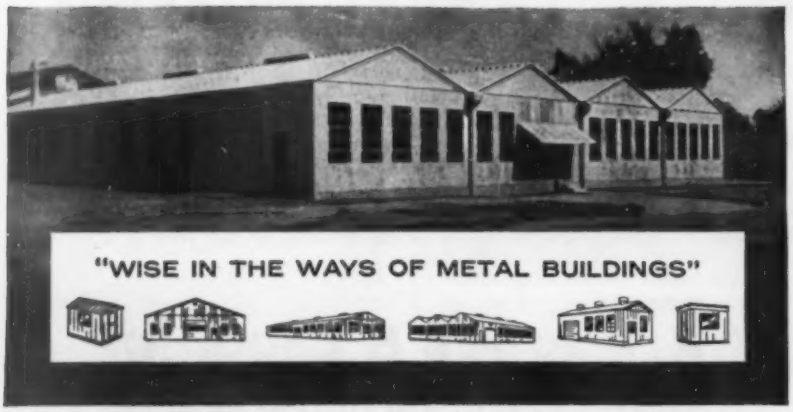
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• **Parent's Health**—North American itself has been in the headlines lately because of the cutback in its Navaho missile project and the closing of its Fresno modification center. But the corporation's earnings and order backlog still look bright. Last week it paid an extra dividend, and earnings for the nine months ended June 30 were $26-million and $3.32 a share, compared with $22-million and $2.79 a share in the same period a year before.

Still, the bloom is off the defense rose. That makes Atomics International look all the better to North American, because AI's emphasis is entirely on civilian uses for the atom. North American's present policy is to back AI expansion indefinitely.

V. Help Still Wanted

From his own market research, Starr estimates some of the rewards that might come to AI. In the 10 years ahead, he envisions $1.5-billion in sales for all U.S. atomic power equipment makers. In the succeeding decade—1967 to 1976—he estimates that world business in atomic power stations will come to $38-billion, including $25-billion abroad. U.S. manufacturers should win a $22-billion share in this world market, he thinks—including $5.5-billion for reactor equipment and the rest for conventional engineering, construction, and electrical gear.

• **Compromise**—Still, Starr is convinced that for some years to come the atomic energy business will need government help, both in support for research and development and in some kind of subsidy. But at the same time, he regards making and selling atomic equipment as private industry's job.

He also thinks the U.S. atomic energy industry should receive some patent protection to help it compete overseas. Foreign governments can now take out patents on AEC discoveries simply by varying the design slightly.

• **Career**—Starr, now 45, describes himself as a "product of the cloistered towers." He finished high school at 15½ but, to his annoyance, couldn't start college until he was 16. He made up for lost time by winning a Ph.D. in physics from Rensselaer Polytechnic Institute at 23. After research at Harvard and MIT, and a stint with the U.S. Navy Bureau of Ships, he joined the Manhattan District, where he stayed, in various phases of government atomic energy research, until he went to North American in 1946.

In Atomics International, he delegates most administrative and technical chores. His concern is with broad policy, new products, new business—and the problems of liaison with all agencies that deal with atomic energy. **END**

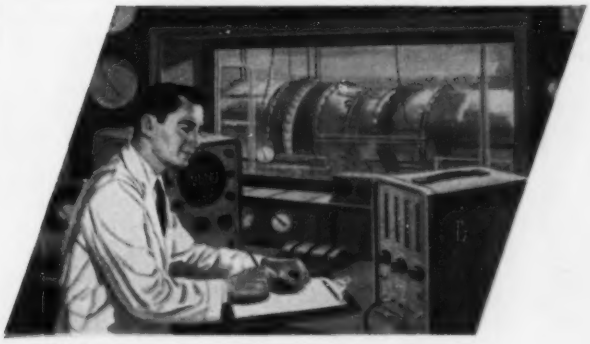
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Kaiser, "Easing Up" at

His Village is doubling the islands' hotel space, but that is only a beginning for "retired" boss of industrial empire.



ALWAYS HAPPY on a construction site, Henry Kaiser, Sr., beams at drain piping . . .



. . . HEAVES HIS 240 LB. up a rough ladder to watch. After all, he's only 75.

WHEN Henry J. Kaiser, Sr., and his wife paid a Christmas visit to Hawaii in 1953 they couldn't find the sort of hotel they wanted.

Now the ordinary mortal would have written this off as a standard holiday nuisance. But Kaiser is not ordinary; even now at 75 he's a hole-filler, a man who cannot stand the sight of a shortage. And those less-than-heart's-desire Christmas accommodations gave him an overmastering desire to supply Hawaii with more hotel rooms.

• **Results**—When Kaiser wants things, they tend to happen. For Hawaii, in four short years, the happenings look something like this:

• In the realm of the completed, there's a 14-story hotel—tallest in the islands—a Polynesian Longhouse for meetings, and an ultra-modern convention hall that can seat 1,800 (BW—Feb.2'57,p75). All this on newly furbished beachfront land, plus assorted smaller hotels, cabins, and cottages, constitutes a long running start on the ever-changing over-all plan for his Hawaiian Village (BW—Oct.1'55,p72).

• As for things actively perking, there are the first piles driven for another hotel, which will help bring Kaiser's total of rooms to 3,000—more than all the islands could boast in 1953. And just last week, Kaiser got the zoning variance he needed to get going on the hospital he wants to build close to the Hawaiian Village, as a focus for the expansion of his beloved—and controversial—Kaiser Foundation Health Plan, which provides all-cost medical insurance.

• Further in the future—and just pipedreams to less optimistic islanders—are his plans to fill in new islands on the reefs off Waikiki, and ultimately to shift the bases of his tourist activities to the outer islands. He thinks 10,000 more rooms on a still nonexistent Magic Island would be about right.

In the course of all this doing and dreaming, Kaiser became the biggest landowner on Waikiki. Also, he made up for that earlier, lamentable inadequacy of hotel suite by buying, for $187,500, the beach house of Mrs. Margaret Emerson, Bromo-Seltzer heiress.

• **Partner Summoned**—Kaiser didn't do all this by himself; he's no loner but a man who delegates authority and leans heavily on associates. His first call in Hawaii went to Fritz B. Burns, Kaiser's partner in earlier building ventures. Burns, wealthy and important in his own right, became a 50-50 partner in the Hawaiian project. To illustrate their close cooperation, there's a story told that at one point in the Village, Kaiser felt that a pool should be built, while Burns favored a dance floor. What they got was a pushbutton dance floor that rolls out over a pool.

In 1956, the partners announced that they were to become three; Conrad Hilton would help design their hotels, and then operate them. But this deal foundered on a reef of detail, and the hotels are under the management of Western Hotels, which runs the famous St. Francis in San Francisco.

• **The Empire**—Even with a partner—and Kaiser does more on-the-spot work in Hawaii than Burns, 18 years his junior—his activities on the islands look pretty good for a 75 year old. They look a lot better when you remember that he also keeps active fingers in the worldwide Kaiser industrial empire, with its claimed assets of $1-billion and annual sales of $800-million. It's an empire that has built enormous dams, that in the war produced 1,490 ships and 50 escort carriers. It now includes the 12th biggest U.S. steel producer, one of the aluminum Big Three, the Permanente Cement Co., the Willys Jeep division, gypsum production, construction, and scads of other activities. Incidentally, most of the enterprises have outlets in Hawaii; Permanente has something like a monopoly.

All this doesn't consume Kaiser's entire time. He has also managed, in Hawaii, to start a recording business (BW—Nov.3'56,p46), a radio station and a TV station.

• **Quite a Day**—The extent of Kaiser's activities in Hawaii is even more astonishing when you realize that, less than two years ago, he was quite ill, and widely believed to be at the end of his career. Instead, recovering, he still works a day that starts at 5:30 a.m. —4:30 if he wants to phone the mainland—shifts from work to relaxation about 7 p.m., and tapers off to bed sometime between 10:30 and midnight. When he flies, it's at night so he can sleep en route. All this, his closest associates say, is a notable slacking off from the pace he set during the war and even up to the time of his illness.

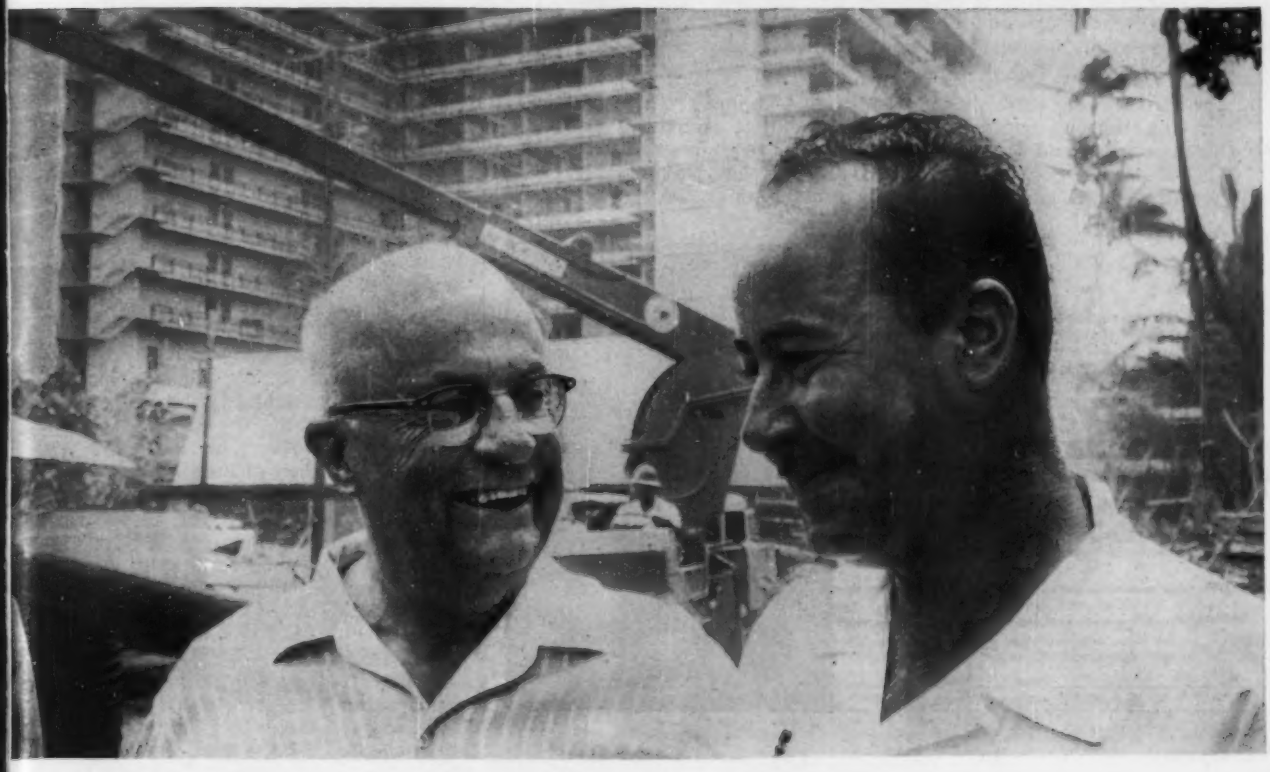
All this immense energy is packed into a 5 ft. 10¼ in., 240 lb. frame, that generally ambles, rarely sprints. Moon-faced and often beaming—especially around his beloved heavy equipment—

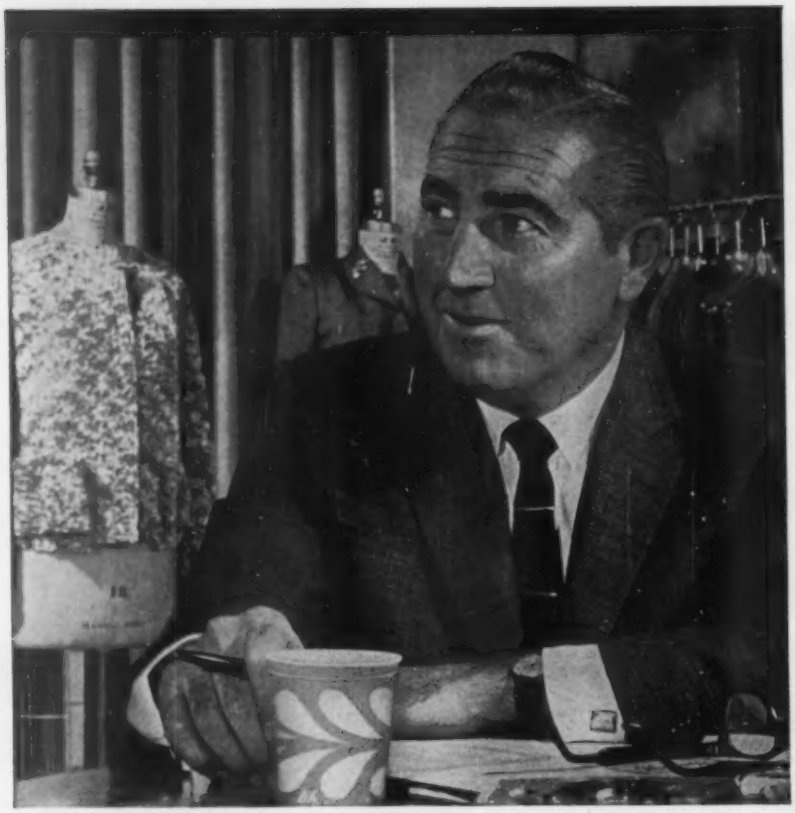
75, Makes Hawaii Project Hum



ONE UP, ONE COMING. Leaving completed hotel, Kaiser and 50-50 partner Fritz Burns (on Kaiser's right) inspect new site.

HEAVY MACHINERY is Kaiser's delight, and he can operate it himself. Here he congratulates his superintendent of pile drivers.





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THE BOSS sports the traditional lei.

Kaiser speaks softly, almost purringly, unless, his associates say, someone lies or tries to bluff him; then he rears.

• **Roots of an Idea**—That landmark Christmas visit in 1953 really tied Kaiser to the islands, but it was not his first visit, nor the first time he had been awed by a dream of tourist expansion in Hawaii. For Kaiser is more than a hole-filler, he's also a curve watcher—preferably fast rising curves of a graph that shows increasing production, or sales, or some kind of progress. As early as 1950, on a visit, he glimpsed immense possibilities in Hawaii's tourist business, based on rising curves of leisure and population. Later, that unsatisfactory hotel suite set him on the track of the curves.

Today, his favorite graph is the total July business of his Hawaiian Village, up nearly 400% over the year-before month.

He hopes to push that a lot higher, and his pet lever is the idea of getting tourists wholesale, rather than retail. Ever since the war, the Honolulu city fathers have pined to attract more conventions. Everybody talked about a convention hall, but no one did anything till 1956 when Kaiser cranked up to build his 1,000-person Longhouse—in 60 days. This year, he shaved the 60-day time in building the even larger aluminum-domed auditorium at the Village, which seats 1,800.

• **Bigger Share**—Kaiser wants to draw a much bigger share of the 10,000 conventions held every year in the U.S. He keeps drumming into assorted Hawaiians that their tourist trade would shoot way up if they could snare just one convention a week, at an average of 600 persons each. That would boost tax revenues by $2.8-million a year, he says.

Another kind of tourist that Kaiser wants is the salesman who has won a



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trip as an incentive prize for performance. He's a great believer in such prizes; says they have brought an average sales increase of 30% in his own companies.

He is also convinced that it's going to be a lot quicker and easier for all these tourists—conventions, salesmen, just plain people—to get to the islands as the jet age develops. His imagination, never one to see things small, visualizes 4-hour air trips from the Pacific Coast to the islands by 1959. He says a single 120-passenger jet could deliver 2,880 people to Hawaii in 12 days, which is about four times as many as the new $20-million liner Matsonia can tote in the same period.

What's more, he figures that for every new jet plane put into the service, there will have to be a new hotel to handle its passengers.

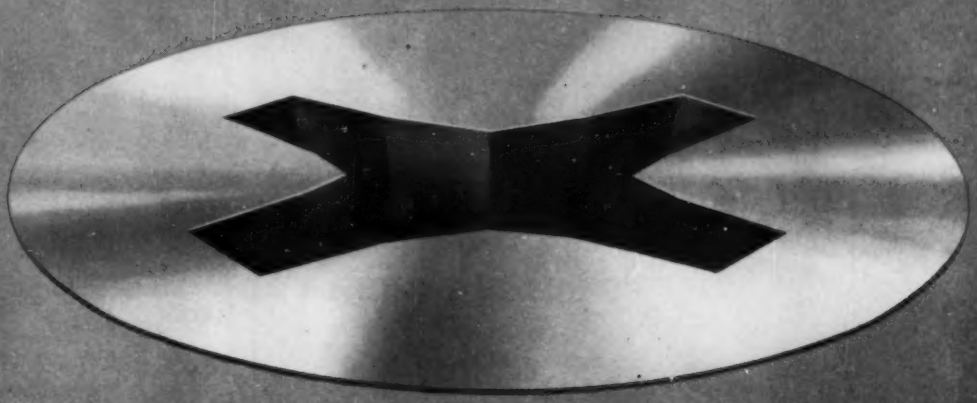
• **The Land Deals**—Nothing gives a better idea of the imaginative and stubborn way in which Kaiser operates than the deals by which he acquired his present 18-acre Waikiki tract, with ample frontage on a new lagoon and on a fine publicly built ocean beach.

The first land Kaiser bought, in November, 1954, was called the John Ena tract; he paid $750,000 for 7.8 acres of slum, with about 100 dilapidated houses.

The Ena tract had ocean frontage, but in a most unhandy way. In effect, it lay at the base of a U—a U filled with sea water, but a most unattractive batch of water, shallow and rocky. The sides of the U were owned by other people, on the left as you faced the sea by the Niumalu Hotel on its somewhat seedy 5.8 acres.

The Territorial government's master plan for beaches had long called for filling in the whole U, making it a public playground with a fine new man-made beach closing the top. However,

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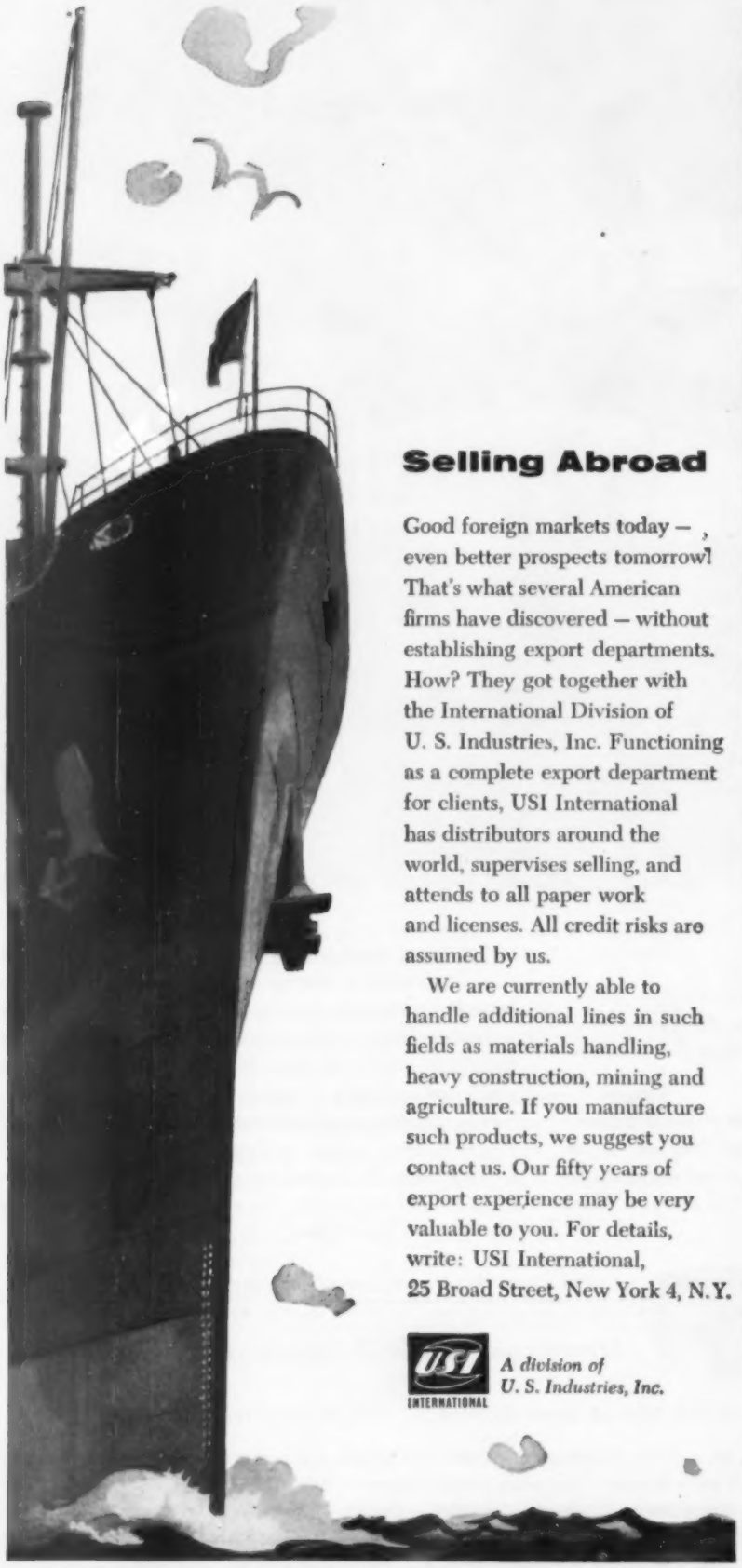
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CATAMARAN provides Kaiser recreation.

Kaiser's land carried the usual littoral rights—the right to any land built up by the sea, and the right to keep on fronting on the sea. The government planned to condemn Kaiser's rights; it had $110,000 available for the whole project.

• **Appraisals**—Kaiser and Burns weren't having any. They brought in teams of appraisers who valued the littoral rights at $450,000, which happily turned out to be the same value they set on the 6.4 acres to be created by the filling. Armed with the appraisal—later more or less accepted by a bipartisan panel—Kaiser suggested that the Territory give him and his neighbors the 6.4 acres and call it square. Kaiser would do the filling.

The government gulped; that looked to it like giving away nearly $500,000 in beach front land just for the $40,000 cost of filling.

At this point, the interests of the Niumalu Hotel owners were becoming a complicating factor for Kaiser's negotiations, so he bought their tract, for $1,262,500. This raised Kaiser's prospective share of the 6.4 acres to 4.9 acres.

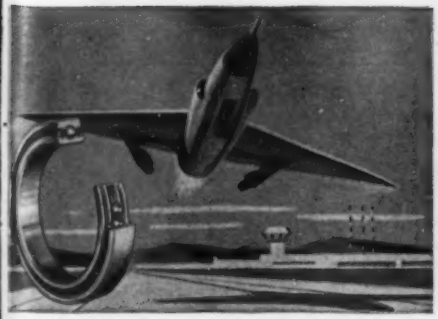
• **Compromise**—After some more haggling, Kaiser and the Territory evolved a truly imaginative compromise. The key terms were:

• The Territory would build the planned wide new beach across the top of the U.

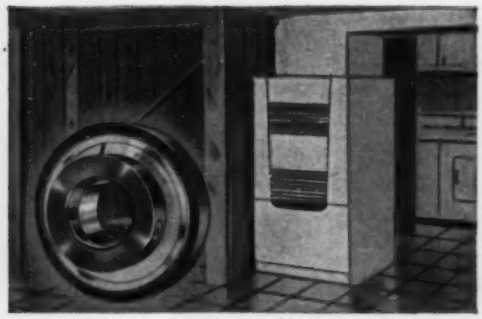
• Kaiser and the owner on his right would get about 3 acres (instead of the whole 6.4). Of this, Kaiser's share was about 2½ acres.

• The remaining 3.4 acres would be a public lagoon, on which both Kaiser and the other owner would have frontage. Kaiser agreed to build the lagoon, in order to get fill for his new land. He also agreed to provide and operate pumps to supply the lagoon

DIVERSITY-CAPACITY



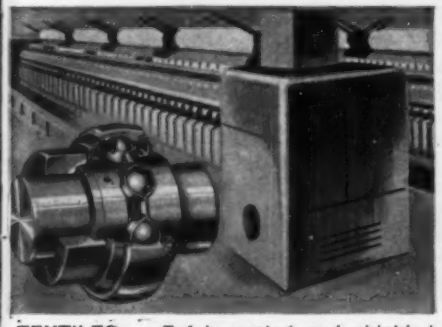
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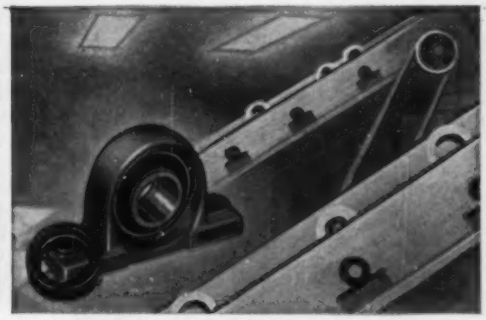
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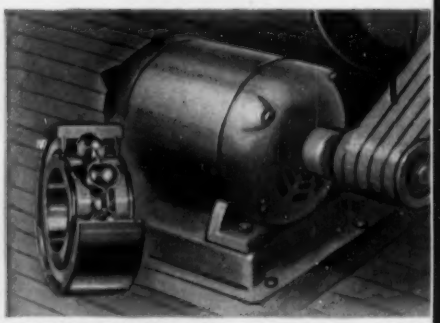
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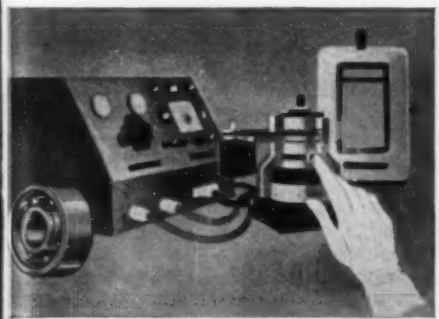
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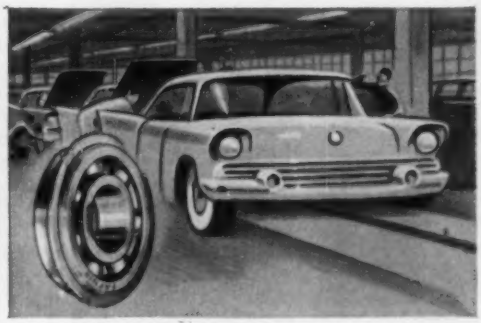
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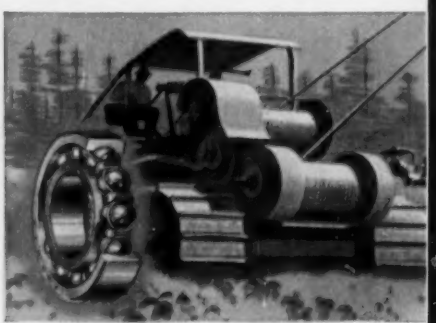
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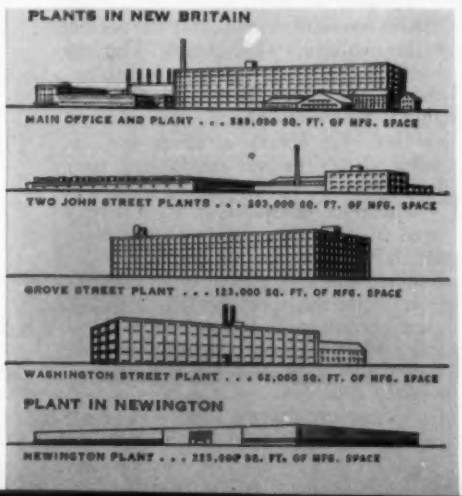
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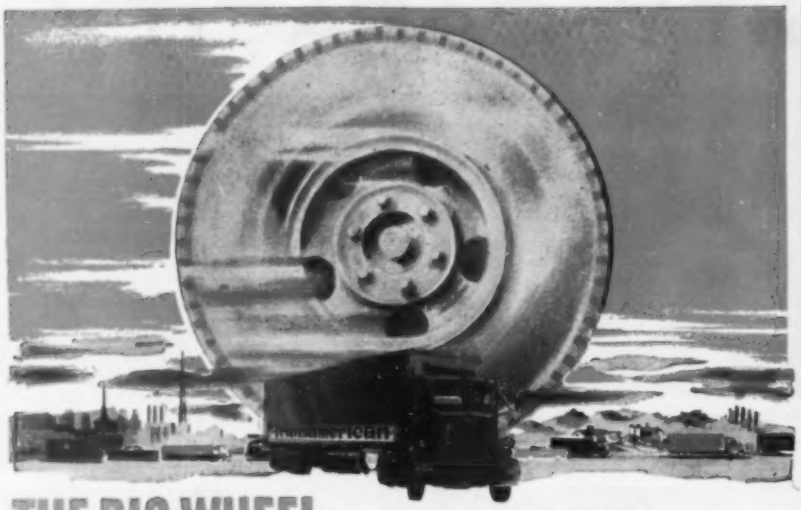
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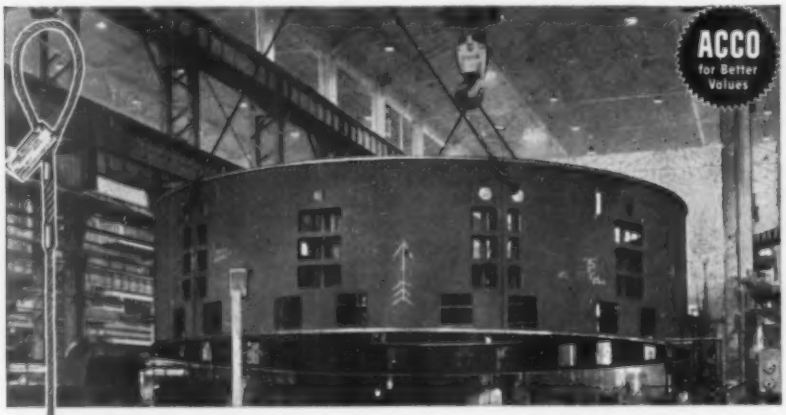
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LANDSCAPING detail draws Kaiser, Burns.

with 1,000 gal. of fresh sea water per minute.

Armed with this deal, Kaiser picked up a few more small parcels of land to the left of the Niumalu tract, and surveyed the completed site of his Hawaiian Village. Essentially, he had converted 7.8 far from prime acres into 18 acres fronting on a new fancy beach with a fair claim to being the best in Waikiki, and also fronting on a fine lagoon. And no one was mad when the arguing ended. Territorial officials who dealt with Kaiser call him a tough bargainer but a square one.

• **Building Rush**—Once the land deal was completed in mid-1955, Kaiser really began to make things pop. In September, the Hawaiian Village was formally opened, sporting 70 guest rooms and suites, the lagoon, three swimming pools, thatched cottages, and various trimmings. By Christmas, four Lanai Houses were opened; in the following July came the Longhouse; in August a new 100-room hotel, built in 89 days. This year, the auditorium was dedicated, a radio and a TV station opened, a 270-room hotel dedicated, and new cottages added along with some landscaping work.

At the moment, piles are being driven for another new hotel, expected to be smallish, at 150 rooms. The big hotel is getting a new foyer and entrance way—the work was started just about the moment the permit was granted, for Kaiser is never one to suffer gladly the waiting for red tape to unroll.

• **The Price of Speed**—In fact, he has been slapped down more than once for failing to wait for the necessary building and zoning permits, and sometimes even the special action of Congress needed to do things in the Territory. Mostly, though, it works out all right. On one occasion the Harbor



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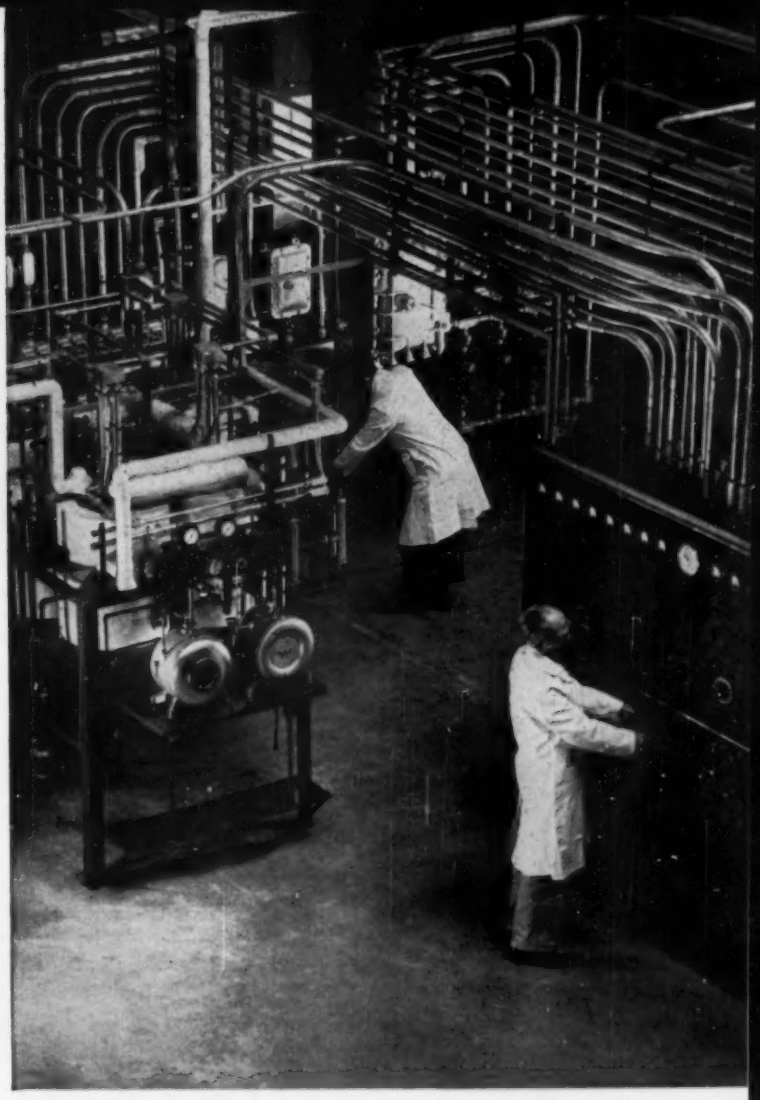
At a new 150,000 square-foot Center near the Newark Airport, the Lummus Company is expanding a long-established engineering development program into a major service to the process industries. The intensive pilot plant investigations carried out here will, in the years to come, spell the difference between rash gamble and sound plant investment for many manufacturers in the chemical, petroleum, pulp and paper and allied fields.

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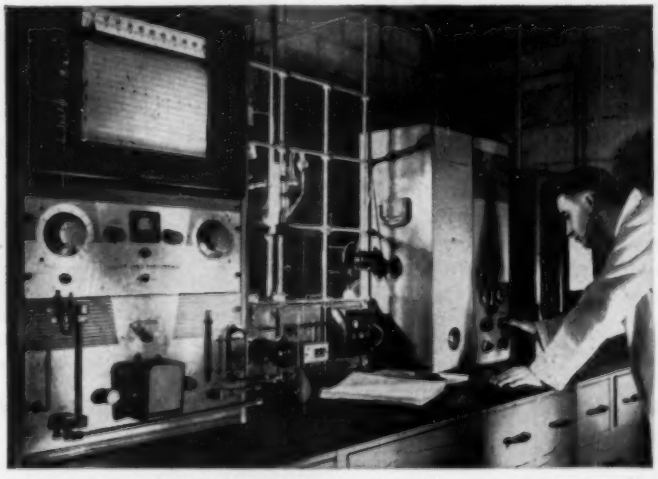
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MOST PILOT UNITS at The Center are put together from standard "building blocks." Skid-mounted charging units such as the one at left hold tanks, heaters and pumps for transfer and metering. Process equipment, here shown in background center, can be widely varied. At right is electrical control cabinet. All switches, relays and controls not housed in explosion-proof boxes are enclosed in cabinets like this one, pressurized with outside air to exclude process vapors.



ANALYSIS OF MATERIALS processed and produced in pilot operations at The Center is an important part of the work carried out by Lummus engineers. Here a laboratory technician determines the composition of a multiple-component gas, using a gas chromatography technique.

IDEAS FOR PROFIT IN INDUSTRY

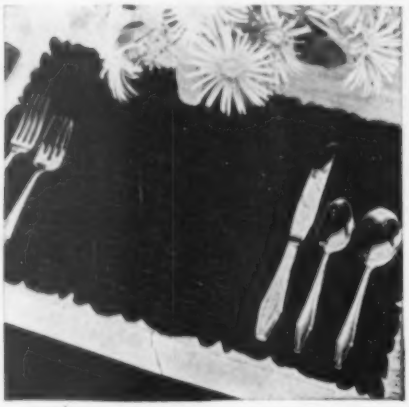
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AN EYE on everything means more speed.

Commissioners bridled when they found he had planted palms on a public beach area without mentioning it to them. Finally, the commissioners decided the palms looked fine and allowed them to remain.

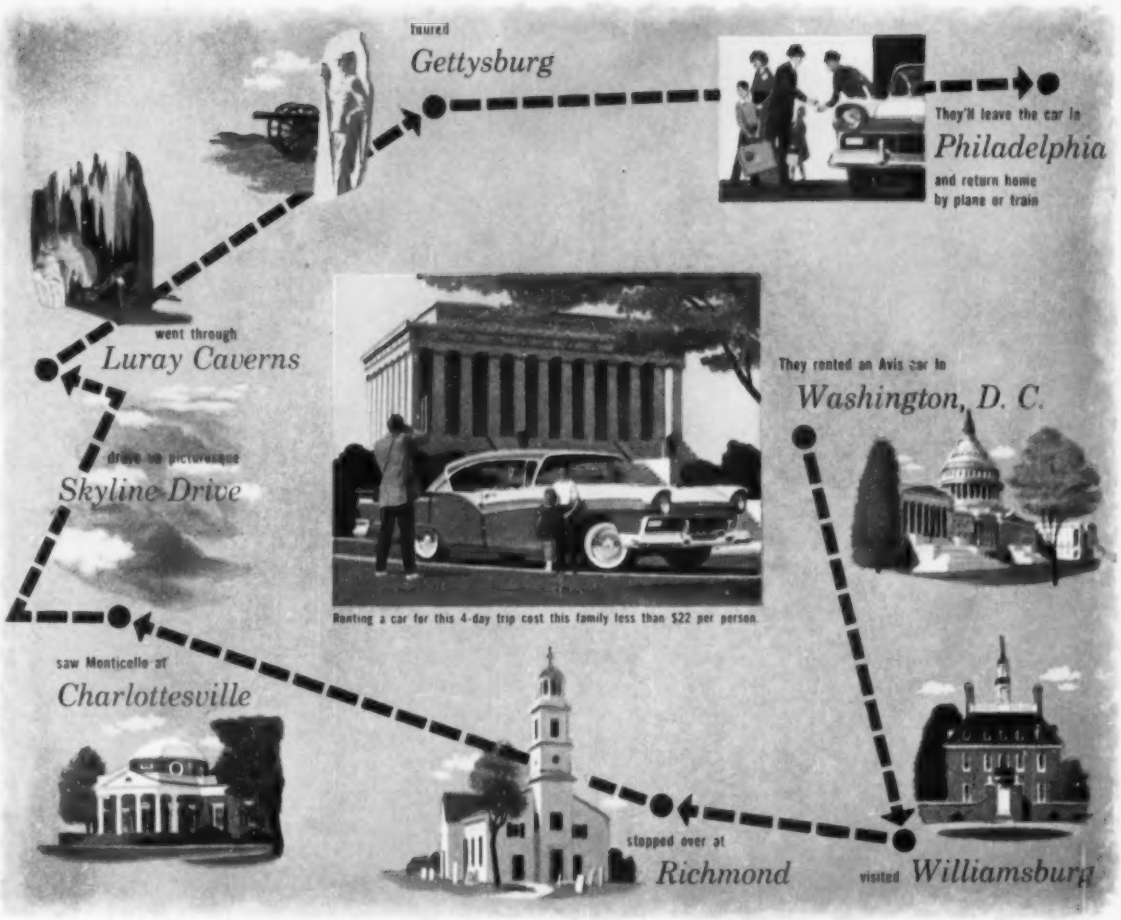
By now, officials have learned to wander around the Village pretty frequently, just to see if anything is going on unbeknownst to them. Mostly, they seem to admire Kaiser, but one of them added this caution: "You've just got to stand up to him or he'll walk all over you."

Kaiser speed can lead to other mild snafus. In one of the new hotels, a guest tried to stick a used razor blade in the appropriate slot of his medicine cabinet. The blades bounced right back. It turned out that a harried workman had installed the cabinet upside down.

Speeded-up construction also leads to considerable extra costs in overtime, and in tearing down and rebuilding as plans change. But Kaiser accountants figure it's worth while. The faster you get a building into use, the faster it starts earning money.

• **Old Folk**—In any case, no minor misadventures arising out of haste could slow Kaiser down. He dislikes slowness almost as much as idleness—which is his pet hate of all. This leads to a rather neat paradox. Kaiser, who is busily building space for the growing number of people who retire at 60 or 65, can't imagine how anyone could dream of retiring. But after all, he's only a young fellow of 75.

Work makes Kaiser feel good, and so, he says, does the color pink. His favorite coral-purple shade is now spread so far around the Village—on boats, docks, dining rooms, the struts of the auditorium, even the clothes of Mr. and Mrs. Kaiser—that veteran islanders recognize the shade right off as "Kaiser pink." END



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INTERNATIONAL OUTLOOK

BUSINESS WEEK

SEPT. 14, 1957



On Syria, top U. S. officials purposely have been blowing hot and cold during the past few days.

The White House and the State Dept. warned last week that any Syrian aggression against its neighbors would be met by U. S. military force. To discourage such aggression and to blunt Soviet subversion, Washington rushed arms to Jordan and other neighbors of Syria.

But this week at his press conference, Secy. of State Dulles discounted the chances of Syrian aggression. And he said flatly that there would be no U. S. intervention unless Syria first committed overt aggression.

The change of tone was designed to give the U. S. greater freedom of action in the Middle East.

The tough talk and arms shipments are meant to strengthen the pro-Western regimes in the countries around Syria. They are also meant to scare the Syrians into going slowly—and to warn Moscow against pushing the Syrians into war.

On the other hand, Dulles' soothing statements are designed to reassure Arab, and Afro-Asian, opinion that the U. S. will only intervene if there really is Communist aggression. State Dept. officials believe this is necessary if the U. S. expects to keep the political capital it won during the Suez crisis.

Here's Washington's current evaluation of the Syrian situation:

For the moment, Syria is controlled by a clique of men responsive to Moscow's wishes. But they have not yet consolidated their position. Until they do, there is not likely to be any Syrian aggression. Meanwhile, there still is opposition to the Communists even within the military and civilian groups that now have power. The merchants and landowners are solid against the government.

If Syria should become a full Soviet satellite, U. S. policy undoubtedly would harden. Washington might well intervene directly if a pro-Soviet regime (1) cut the oil pipelines crossing Syrian territory; or (2) pushed subversion in neighboring states to the point where it threatened anti-Communist governments.

—•—

In London, investors are shifting from stocks to bonds—and talk of permanent inflation, universal until a month ago, is heard no more.

Under Wall Street influence, doubts about the strength of the business revival, especially about profit margins, have been growing steadily in London.

Here are some of the things signaling the new London mood: Bonds have halted their long decline, started a mild rally. Stocks have dipped well below the 1957 high of a month ago. Investors have just oversubscribed by four times a 6% bond issued by Esso Petroleum, the big British subsidiary of Standard Oil (N. J.). A stock offer by British Aluminum, usually a popular borrower, was only 80% subscribed.

—•—

The summer bear raid on the pound seems to be over. Sterling has needed little official support for some days, as speculation petered out.

Talk of early changes in the rate of the pound or the West German D-mark has all but ended. In fact, London officials expect to see the pound strengthened by Britain's steadily improving trade position.

Even so, optimism won't be the main burden of the British delegation at the upcoming meeting of the International Monetary Fund (page 28). There's a feeling in London, which is shared by some Continental observers, that world trade is threatened by a liquidity crisis—by the relative scarcity of funds to finance trade.

The liquidity problem is attributed to a recurrence of the dollar shortage and to the way West Germany has sucked in gold and hard currencies.

According to the latest Washington estimates, practically all other non-Communist countries have been losing gold and dollars this year as a result of their transactions with the U. S.

If you exclude $500-million in oil lease payments to Venezuela during the first half of the year, the outside world lost $1-billion during this period. (West Germany, though, accumulated about $600-million during the first half, and perhaps as much again in the third quarter).

The drain on foreign reserves seems to have stopped during the third quarter, as U. S. imports rose and U. S. exports fell off.

Best bet in Washington now is that non-military exports are tapering off from their spring high. For the year, they will be around $19-billion—not much more than last year's total. Imports will be about $12.7-billion, or the same as last year.

If the year's merchandise trade balance comes out this way, reserve losses of other countries—excluding Venezuela—will be limited to about $1-billion for 1957 transactions with the U. S.

—•—

The Administration soon will feel the pinch of Congressional cuts in foreign aid—especially in the long-range development loan fund. This is going to make it hard for the U. S. to do much about the gathering economic storm in India.

India is facing its worst economic crisis since independence (BW—Aug. 17'57,p134). Foreign exchange reserves have dropped this year by almost $1-billion, despite strong measures to curb inflation and imports. Now there's a threat of higher prices, labor unrest, and food shortages.

Some U. S. officials think India has reached a turning point comparable to that reached by Western Europe just before the Marshall Plan. Unless New Delhi gets substantial Western help, these officials say, Prime Minister Nehru will be forced to turn more and more to Moscow for help.

India's Finance Minister T. T. Krishnamachari will throw his problems into the Administration's lap when he visits Washington for the IMF meeting later this month. He will ask for loans of at least $600-million over the next three years.

But Washington just hasn't the means to help India much immediately. The Administration will have to stall off the Indian demands until it can get more aid from Congress. Meanwhile, it will urge New Delhi to do everything possible to attract private U. S. capital (page 204).

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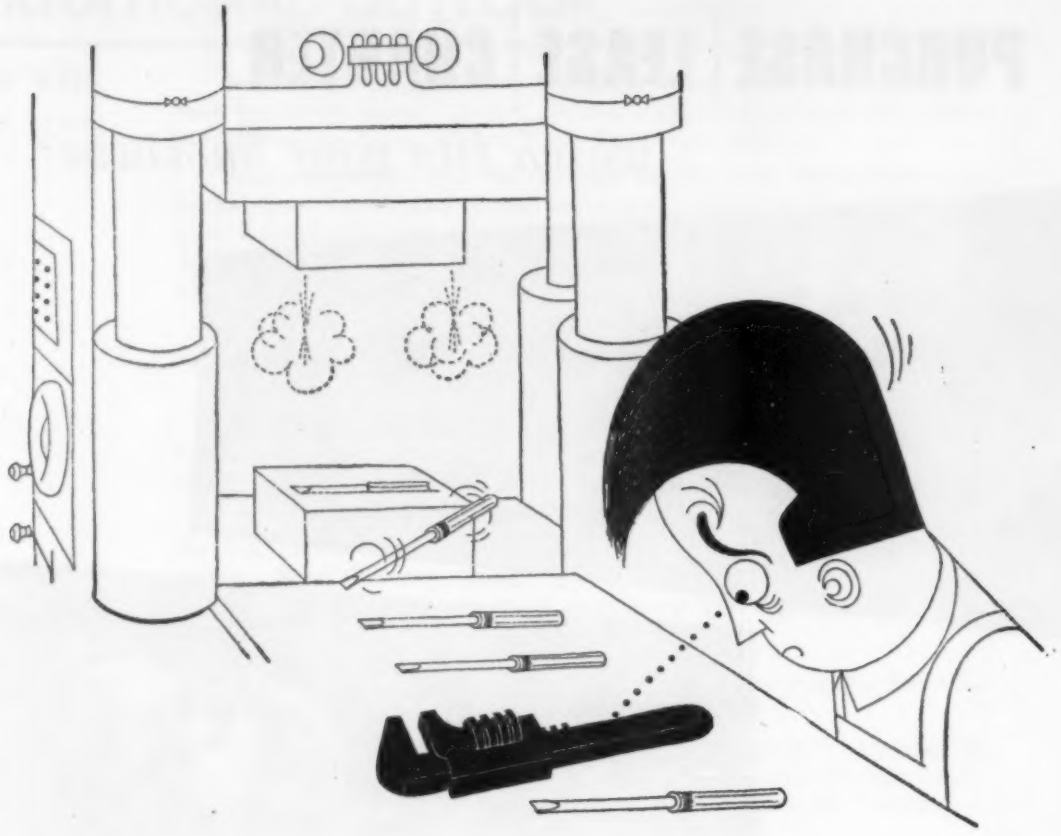
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In Washington

• • •

Last-Minute Bill Aimed at FPC Insures Power Fight Next Year

For years, each session of Congress has been embroiled in squabbles about electric power policies. The recently adjourned session was no exception. And the issue is assured of being a lively one in the next session as a result of a bill introduced by seven partisans of public power in the Senate, just before Congress adjourned.

The seven senators, all Democrats and all from the Northwest, sponsored a measure aimed at limiting the Federal Power Commission's licensing authority. The intent: to forestall further licenses for private power development at dam sites that lend themselves to multi-purpose projects. **If such a bill had been in existence earlier, FPC would have lacked authority to license Idaho Power Co. to build a series of three low dams in the Snake River.**

The bill, slated to be taken up early next session, would:

- Allow FPC to license only hydroelectric projects that are "best adapted" to improvement or full development of a river's water resources.
- Establish Congressional definition for "comprehensive plan" and "net public benefits" and other key factors FPC considers in the granting of licenses.
- Require specific Congressional authorization for any FPC license to a project that does not satisfy the defined standards.

The seven senators sponsoring the bill are Warren Magnuson and Henry Jackson of Washington, Wayne Morse and Richard Neuberger of Oregon, James Murray and Mike Mansfield of Montana, and Frank Church of Idaho.

• • •

Battle Over Seaway Toll Rates Gets Off to an Early Start

The St. Lawrence Seaway is the center of a new dispute—this time over toll rates to be charged when the waterway is ready to carry ocean-going vessels into Great Lakes ports in the spring of 1959.

Hearings in Washington and Chicago this week pitted the anti-Seaway interests (railroads and Atlantic ports) that want high tolls against shippers and Great Lakes' businesses that would like low tolls—especially at the outset—to encourage trade for the new route.

A survey made by the St. Lawrence Seaway Development Corp. shows that 10 of 15 prospective users of the Seaway go along with **the method Canadian and U.S. officials are studying: a minor charge based on a vessel's registered tonnage, whether loaded or not, plus a principal toll charge based on whether it is carrying bulk or general cargo.**

This method differs from the systems in use at both the Suez and Panama Canals. In these cases, rates are based on the ship's full earning capacity if it's carrying any cargo at all.

The battle over Seaway tolls will flare up again when U.S. and Canadian officials announce their proposed rates, probably by next spring—roughly a year before the Seaway opens. Lewis G. Castle, administrator of the U.S. Seaway Corp., denied at the Washington meeting this week that there was any plan to run the Seaway on a toll-free or subsidized basis. The law requires that tolls be sufficient to pay off the full investment made by U.S.

• • •

President Cites Inflationary Pressure In Killing Raises for Federal Workers

Pres. Eisenhower last week vetoed a pair of bills that would have provided $850-million in wage increases for 1.5-million government workers.

The President gave as his reason inflationary pressures and directed a low-pressure plea to private industry and labor on this score.

"Government cannot in good conscience ask private business and labor leadership to negotiate wage adjustments with full regard to the whole nation's interest in price stability," he wrote, "while at the same time approving the enactment of these wholesale salary increase bills."

For federal workers, the veto was a disappointment, but certainly no surprise. The President lent them some solace, however, by promising to support "fair" and "logical" adjustments based on recommendations of a current inquiry, undertaken at his order, into federal pay systems.

• • •

Bumper Crops in Prospects for 1957 Despite the Government's Efforts

This week brought fresh evidence that the government's efforts to promote agricultural scarcity have fallen short of the mark.

The Agricultural Dept. has revised its estimates and now expects 1957 crops to be 105% of the 1947-49 average, compared with 106% in 1948 and 1956. **And this year's yield per acre is indicated at 126% of the 1947-49 average.**

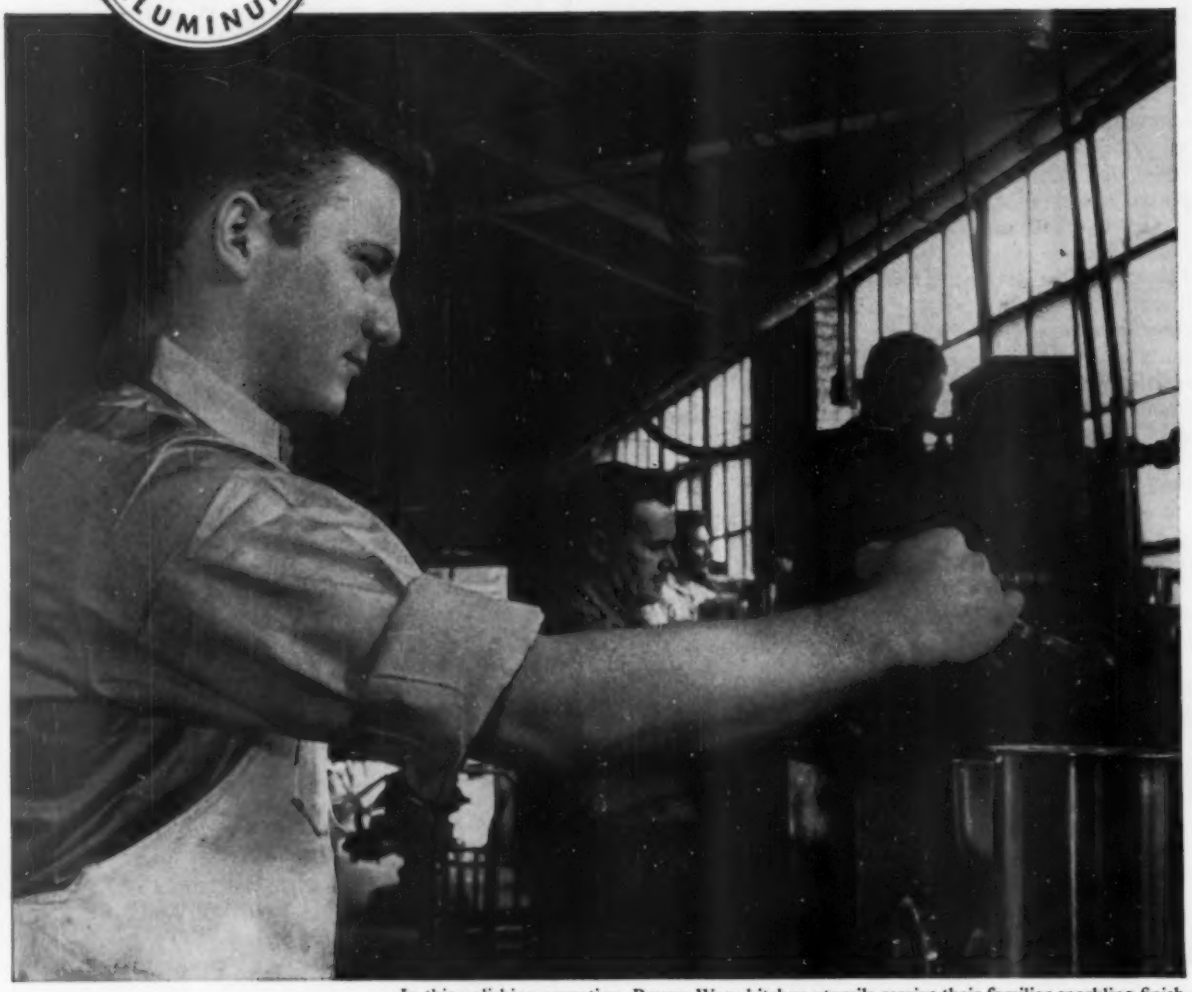
Officials give these explanations for the 1957 bumper crop expectations:

- Farmers committed their least productive acres to soil bank retirement and cultivated remaining crop land more carefully.
- Weather has been generally kind to farmers this year in the Midwest and Far West.

Major crop prospects for this year (with 1956 figures in parentheses) now look like this: corn, 3.19-billion bu. (3.45-billion); oats, 1.33-billion bu. (1.15-billion); wheat, 930-million bu. (997-million); soybeans, 458-million bu. (455-million).

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LABOR

AFL-CIO's Watchdog at Work

● The federation's Ethical Practices Committee is now at work on its most critical assignment—its report on the Teamsters for the Executive Council.

● In its short past, the committee has taken a stern attitude toward unions charged with corruption.

● Its handling of the Teamsters situation and the council's reaction to its report—may determine the success of labor's efforts to clean its own house.

This week, two years after the AFL-CIO merger, Big Labor is approaching the biggest test in its attack on crooks and racketeers that threaten to undermine unionism.

The AFL-CIO Ethical Practices Committee is preparing to go before its superior body, the AFL-CIO Executive Council, on Sept. 24-25 with reports on at least two—and probably three—international unions accused of "being dominated, controlled and substantially influenced" by corrupt forces.

• **The Big Cases**—Foremost of the three cases, of course, is that against the powerful International Brotherhood of Teamsters, the nation's biggest union, which claims 1.4-million members in more than 800 locals. Another report will cover the 140,000-member Bakers & Confectionery Workers. The third report, if it can be prepared in time, will deal with the United Textile Workers, a 50,000-member union.

Because the gigantic truck union is involved and because Congressional investigators are focusing the publicity spotlight more sharply on the shadowy realm of labor corruption, the Ethical Practices Committee—the federation's own investigating body—is getting more attention.

I. Inception

In the fall of 1955, when the American Federation of Labor and the Congress of Industrial Organizations merged, it was clear that the resulting organization needed better policing over its affiliates than either of the two big parent bodies had exercised before.

The old AFL, for example, had been forced to expel its International Longshoremen's Assn. because the corruption had become so plain that it could no longer be ignored—and because the AFL was powerless to force union officials to clean up.

Rumors of other labor "messes," some of which are only now getting full exposure, were in wide circulation. Most involved AFL affiliates. CIO unions demanded guarantees of clean unionism in the new federation.

• **New Setup**—George Meany, the choice for first president of AFL-CIO, was in full accord with those desiring stronger, central action against racketeering and corruption in labor. He sought and got reluctantly, in many cases, surrender by all affiliated internationals of a bit of their cherished autonomy relating to questions of corruption or Communism.

As a result, the AFL-CIO constitution includes a provision creating the Ethical Practices Committee and defining its duty: "to keep the federation free from any taint of corruption or Communism."

This accomplished, Meany appointed the committee, five veteran labor leaders, all presidents of important internationals, with good records for honesty and integrity: Al J. Hayes of the Machinists, who serves as chairman; Joseph Curran, National Maritime Union; George Harrison, Railway Clerks; David Dubinsky, Ladies' Garment Workers; and Jacob S. Potofsky, Clothing Workers.

On Feb. 5, 1957, the Executive Council, to which the committee reports, acted on the first three cases processed by the ethical practices group. Acting on recommendations, the council told the Allied Industrial Workers, the Distillery Workers, and the Laundry Workers to clean up—or get out.

II. How It Operates

Last week, the wheel took a big turn when Dave Beck, the discredited but still defiant Teamsters president, led a small parade of his union's officials and lawyers before the committee.

The scene was an auditorium-type room in the AFL-CIO's new Washington headquarters building.

• **Beck's Appearance**—On a raised platform at the end of the room sat Hayes and other members of the committee, plus attorney Arthur Goldberg, who serves as general counsel and "prosecutor" (BW—Sep.7'57,p171).

The doors were closed, and what went on inside the room once Beck and his coterie arrived—55 minutes late—is known only in general terms.

Beck's lawyers challenged the right of the committee to sit in judgment on the Teamsters. Then Beck read a statement denying corruption allegations, but refusing to explain the denial. He refused to answer questions and chose not to cross-examine staff members—Goldberg's law firm associates—on the material they assembled to support the charge that the Teamsters are, in fact, "dominated, controlled and substantially influenced" by corrupt elements.

• **Hoffa Talks**—Within two hours, Beck marched out and didn't return. Jimmy Hoffa, heir-apparent to Beck's presidency, went back for an afternoon session just as an "individual"—that is, not as an official Teamsters representative speaking for the international. He discussed with the committee, at some length, supplemental charges involving him personally.

If past form is followed, minutes of the hearing will be made public at a special Executive Council meeting in New York Sept. 24-25, simultaneously with the executive body's finding. The council's decision is certain to fall into a standard form of language, concluding with a warning to correct abuses "to the satisfaction of the Executive Council" or stand suspended and face expulsion from the AFL-CIO.

• **Tough Attitude**—The committee's minutes are in legalistic terms, but that doesn't take away the cutting edge. It wrote, in bluntest terms, that it did not credit denials given it by Distillery Workers officials when they answered charges of corrupt management of welfare and insurance funds.

The committee noted that these officials had passed up similar chances to make denials under oath before a Senate labor subcommittee, under Sen. Paul H. Douglas. The Ethical Practices Committee said it considered the "documentation that appears in the hearings of the Senate subcommittee" and found it "more than controverts the unsupported denials" given to the AFL-CIO investigators by the union officials when they were neither under oath nor before a public body that could institute perjury charges against them.

Nor has the committee been impressed by legal arguments that it shouldn't act until a crime has been proved in courts. In discussing charges

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of "outrageous abuse" of Laundry Workers funds, the committee wrote:

"Whether or not a legal crime can be charged or proved, there can be no doubt that the union had overwhelming reason for thinking that [Secy.-Treas. E. C.] James might not be properly performing his office, and nevertheless refused to investigate or take any action against him."

The committee's tendency is to consider a "defendant" union guilty and to demand proof that it is not.

III. Limited Power

Although the committee is a standing constitutional committee of the AFL-CIO, it has no permanent offices, no staff aside from Goldberg and his law associates, no investigators, no power of subpoena to compel an international to lay open its books, and no authority to put a witness under oath—nor even, for that matter, to compel attendance at a hearing.

Beyond that, its jurisdiction is limited to international unions, not to their member locals.

• **Sources of Information**—"The committee gets some mail from local members who suspect things aren't going right," says an AFL-CIO source, "but it can't get into union affairs on a local's level. Of course, if letters or tips come in from many places—that is, different locals—the committee might decide that the international is tainted, and then it could take jurisdiction."

But, in practice, the committee's best source of information is Congress. The Douglas subcommittee of the Senate developed the most damning evidence that led to cleanup orders issued against the Distillery Workers and Laundry Workers just as the more recent McClellan hearings in the Senate have put the Teamsters on the spot before the AFL-CIO committee.

• **Little Authority**—To critics who say the Ethical Practices Committee follows, but does not lead, AFL-CIO Pres. Meany had this response:

"We couldn't possibly have a structure under which we could police 68,000 local unions as well as some 140 international and national unions."

Using the McClellan Senate Select Committee and Dave Beck for an example, Meany says: "Suppose we decided to send someone into Seattle and to have them go into the biggest bank and say, 'We want to see the records of your business dealings with Dave Beck.' They would have just told us to get out.

"There is no possible way we could compel that bank to show us its records. There is no way that we could get Beck to show us his personal records. But the McClellan committee had that

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power and they used that power."

• **Abortive Investigation**—Meany made an abortive investigation of the old AFL's United Textile Workers officials in 1953 and developed strong charges of theft of union funds—based largely on his own strong suspicions. The UTW board, Meany says, "whitewashed" the suspected officials. This year, after the McClellan committee used its subpoena powers to develop more facts on the case, Meany personally ordered the Ethical Practices Committee to issue charges against the union.

IV. The Record So Far

There is no final accounting yet that will show how successful, or unsuccessful, the Ethical Practices Committee is going to be in forcing a clean-up.

The Laundry Workers so far has apparently made little progress toward clearing itself in the eyes of AFL-CIO. It faces expulsion from the federation at the annual AFL-CIO convention in Atlantic City this December.

The other two of the trio of unions that first felt the committee's sting—the Allied Industrial Workers and the Distillery Workers—have indicated a willingness to begin a cleanup. At the May meeting of the Executive Council, these unions reported back with progress reports.

Although these did not fully satisfy the council, it put the two unions on probation to give them more time to comply with AFL-CIO ethical standards. At the same time, the council suspended the Laundry Workers.

• **Road to Rehabilitation**—As proof that the committee shows promise of being able to force some rehabilitation, AFL-CIO officials cite the AIW progress. It has:

• Elected a new president, Carl W. Griepentrog.

• Amended its constitution, at a special August convention, to close loopholes that allowed welfare and insurance funds to be looted.

• Voted not to pay $50,000 severance to onetime Secy.-Treas. Anthony Doria, under a contract approved by the ousted ex-Pres. Earl Heaton.

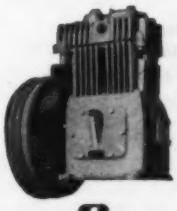
• Ordered international headquarters returned from Beverly Hills, Calif., to the Midwest, nearer to the vast majority of AIW locals.

• Instructed attorneys to take whatever legal steps are required to recover $300,000 that disappeared from the treasury of a Chicago local run by Angelo Inciso.

The Distillery Workers, although still indicating a willingness to cooperate, has accomplished so little since May it "likely will be suspended" at the December convention, a federation spokesman says. END



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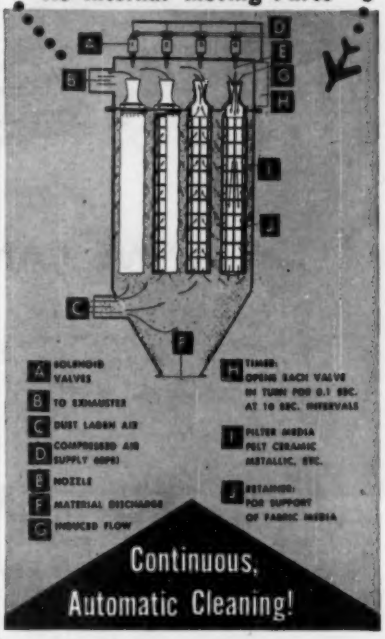
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When a Union Uses the Boycott

URW-O'Sullivan Rubber Corp. dispute is a classic case. But union is having trouble getting the public to go along.

UNION BOYCOTTS are due for a probing by the Special Senate Committee to Investigate Improper Activities in Labor-Management Relations. The boycott of an employer's products is the oldest and potentially the most powerful weapon in the unions' arsenal. The three-year-old Kohler boycott, the long-standing Burt boycott, and the eight-months-old United Rubber Workers-O'Sullivan Rubber Corp. boycott have led to demands that the Senate investigators bare the facts about this kind of economic warfare.

• **Classic Example**—The O'Sullivan boycott, the first in the URW's 21-year history, illustrates what happens when a union uses this economic weapon. The Kohler Co.'s dispute with the United Auto Workers is clouded with violence. The product—plumbing supplies—does not lend itself to the kind of direct consumer boycott possible in the O'Sullivan situation. The Burt Mfg. boycott involves a jurisdictional fight between the Sheet Metal Workers and the United Steelworkers of America, a dispute momentarily resolved by AFL-CIO action (BW—Aug. 24'57,p141). All these will be thoroughly scanned by the McClellan investigators. But only one—the O'Sullivan-URW conflict—is a classic example of the boycott.

The URW is asking consumers to refrain from buying all O'Sullivan products—rubber soles and heels as well as laminated plastics. The union is urging other union members to visit shoe repair shops to inform the proprietors of the boycott. In addition, the union is asking the consumer to refrain from buying shoes with the O'Sullivan heel.

• **Root of Trouble**—O'Sullivan's troubles began when the AFL-CIO shifted a former federal union into the URW shortly after the merger. For 14 years prior to the strike, says company Pres. Paul Terretta, "we lived in complete harmony" with the former AFL local. O'Sullivan employees, according to Terretta, had rejected the URW as a bargaining agent several times in the past.

Negotiations with the URW ended in a strike in May, 1956. At issue, were wages. "We paid the highest wages in the area at the time of the strike," says the company president. With the exception of the two largest companies in the heel and sole industry, O'Sullivan paid wages "in the middle range."

The URW charges that O'Sullivan paid from 40¢ to 60¢ an hour less than the prevailing rates in this highly competitive industry. O'Sullivan workers, says the union, had received a raise of only 5¢ an hour for the three years prior to the strike, while similar manufacturers had granted pay boosts of 25¢ an hour.

The O'Sullivan plant is in Virginia's famed apple country, an agricultural area, where wage rates are traditionally low. At the time the strike started, the average wage of production workers was $1.40 an hour.

In addition to wages, the URW is seeking a more liberal vacation program and life insurance policies.

Out of the 422 workers who went out on strike last year, only 62 have crossed the picket line, says the URW. The remaining 360 are holding fast.

The company, however, has been back in full production since last August. The union has charged the company with bringing in more than 300 workers from nearby states.

• **Why the Boycott?**—The reason—"In our dealings with management, we never before felt that it was necessary to go that far," explains L. S. Buckmaster, URW president. "We don't want to destroy the company, but we don't want the company to destroy our members, either. They threw down the gauntlet and we picked it up."

Union officials intimated they would welcome the McClellan committee's inquiry into their case. They said this would be an opportunity for them to get "all the facts out in the open."

• **Expense to Union**—A strike and a boycott are expensive items, especially if they continue for months. This effort is costing the URW tens of thousands of dollars. The Winchester local, which was newly organized before the strike, virtually had paid no dues.

There have been no figures on the total expenditures, but at one time it was costing the URW $5,000 a week for feeding strikers and their families and paying other major bills on the basis of need.

In waging the boycott, the URW has passed out and mailed 1.5-million circulars and pamphlets. It sends speakers to every labor convention. There are continuous mailings to 10,000 shoe repair shops all over the country.

• **Effect on Sales**—How effective is the URW boycott of O'Sullivan products—rubber soles, heels, and plastic laminates? Not very, is the company's response. Net sales of $3,174,000 for the first six months of 1957 and a net income of $61,949 compare with net sales of $3,159,000 and a net loss of $46,414 for the corresponding months of 1956, says company Pres. Terretta.



POSTERS urging consumers not to buy O'Sullivan heels are distributed by URW.

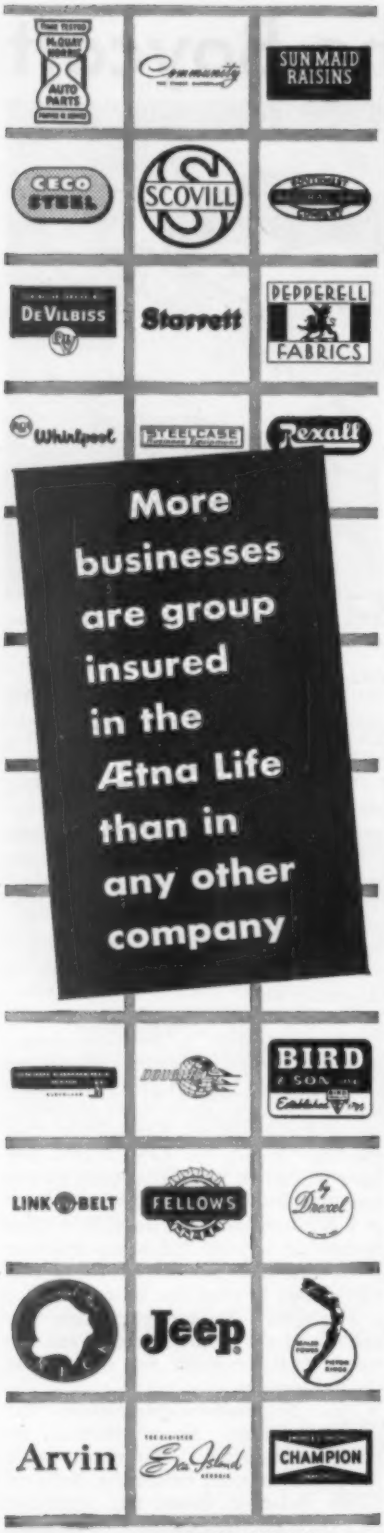
"The public as a whole, including union members," says the O'Sullivan president, "are apathetic to any boycott. Those few who are aware of it, are generally sympathetic with the product not with the union sponsoring the boycott because they recognize in the boycott a completely un-American and evil device that has no business in American life."

Terretta feels that the boycott is "only as effective as the businessman is misled because only the businessman can make the boycott effective. Fortunately," he says, "most of our customers are not only sound businessmen but old-time friends of O'Sullivan's and have refused to be used as tools by the union to help damage us."

• **URW Activities**—The URW has boosted its boycott staff to ten full-time men who visit shoe repair shops and wholesalers to press the boycott.

The URW has now authorized the making of a motion picture to tell the story of the boycott for showing at union meetings.

• **No Negotiations**—Meanwhile the strike continues. No negotiations are being conducted. Hearings were recently conducted before the National Labor Relations Board trial examiner on a decertification petition. The board will decide shortly whether or not an election is in order. The URW has appealed an unfavorable decision by the local NLRB board on unfair labor practices charges leveled by URW against the company. **END**



Steel SUB Faces First Test

Payments start this month, under last year's contract. However, four states have rulings that SUB can't be paid to unemployment compensation recipients.

This month the steel industry will pay its first supplementary unemployment benefits under agreements negotiated in 1956 with the United Steelworkers. The payments, linked with state unemployment compensation, will go smoothly enough in such key states as Pennsylvania, where much of the industry is located. But in four states—Indiana, North Carolina, Ohio, and Virginia—the steel benefits will mean new tests for SUB plans.

Here's the forecast for the four "problem" states:

North Carolina. Simultaneous private and state unemployment benefits are barred in this state by an administrative ruling. USW announced last week that, as an alternative, the union and companies with which it has SUB contracts have agreed on a lump-sum SUB payment at the time a laid-off worker is recalled to his job, or when his state unemployment compensation runs out.

Indiana and Virginia. Both of these states amended their unemployment compensation laws to ban any form of integration of SUB and unemployment compensation. Since management and union talks failed to come up with a solution, the knotty problem of how to make SUB payments in these states is in the hands of steel industry-union arbitrators, as provided by contract.

Ohio. State law is interpreted by unions as allowing SUB and unemployment compensation to be tied together. The Ohio Bureau of Unemployment Compensation and many employers contend they can't be (BW—Jul.20'57, p153). But no order barring simultaneous SUB and UC payments has been put to a test. So the steel industry plans to go ahead with concurrent SUB to laid-off workers.

• **Test Coming Up**—The steel industry says it can't do otherwise; it must exhaust all possibilities for making SUB payments before considering other steps.

What will happen has already been indicated by BUC's administrator, James R. Tichenor. As long as a year ago, he made clear that he considers SUB to be "wages" that would bar recipients from state unemployment compensation. When cases of simultaneous payments come to his desk, he will almost certainly rule them illegal, and institute action to recover any UC payments that had been made concurrently with SUB.

As soon as Tichenor makes his ruling, these cases will be appealed to the Ohio Board of Review, where cases based on alternative forms of payment are already being considered. Any appeal of the board's decisions—whether by the unions and the steel companies or the BUC—can go to the Ohio Court of Appeals and ultimately to the Ohio Supreme Court. So lengthy litigation is possible.

• **Not in Doubt**—In contrast to the Ohio situation—where public officials and labor differ on what can be done under the UC law—the Indiana and Virginia statutes clearly prohibit concurrent, alternate-week, or lump-sum SUB payments to be integrated with unemployment compensation. Steel company and unions spokesmen agree it would be a waste of time to look for a loophole in these laws.

Under the steel contracts signed last year, whenever the usual forms of SUB plans can't be put into effect and employers and union can't work out any alternate arrangement, the problem must be submitted to a board of arbitration. Its assignment is to devise some formula that would allow idled steelworkers to collect what's due them from SUB without imperiling their state unemployment benefits.

There is considerable speculation about what this formula will be—or can be. Guessing centers about the SUB plan that was worked out in the glass industry and is held legal in Ohio. "It offers at least some promise of a solution to our problem," one industry man commented.

• **Accepted Plan**—The glass plan, which has been endorsed by management groups that otherwise oppose SUB, is a vested-interest savings plan. Employers pay a stipulated amount (about the same rate as for SUB) into an individual account for each employee. The worker can draw on his savings—within limits during layoffs or illness. The full amount is payable on retirement or death, or under other specified circumstances.

If the glass plan should be adopted in Indiana and Virginia—and, possibly, Ohio—the steel union might face internal problems. SUB plans, as they now stand, are not very popular among high-seniority workers who have little fear of layoffs. The vested-interest savings plan might interest them far more and lead to demands for broad changes in SUB plans already in effect. **END**

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In Labor

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Right-to-Work Laws Assailed By Mitchell, Defended by Grede

A debate between advocates and opponents of a national right-to-work law enlivened proceedings of the first annual get-together of the country's labor reporters under the auspices of the Louis Stark Memorial Fund.

William J. Grede, former president of the National Assn. of Manufacturers, urged a national right-to-work law prohibiting the union shop. **"The union shop," said Grede, "gives labor officials a terrific kind of power—the type expressed before the McClellan committee."**

The president of Grede Foundries, Inc., was promptly challenged by Secy. of Labor James P. Mitchell and David Kaplan, president of the Economics of Distribution Foundation. Kaplan, former chief economist for the Teamsters, agreed that abuses ought to be curbed but said right-to-work legislation could not do the job.

Mitchell said that the union shop would go on even if outlawed. "In developing new legislation," the Secretary said, "we ought to proceed cautiously and objectively. Legislation developed in the hysteria of the moment might in two years seem too weak or too strong."

"My recommendations [for corrective legislation]," he said, "would depend on the ability of the unions to clean house." He said that the Labor Dept. is working with the Commerce and Justice Dept. on bills that may be submitted at the next session of Congress.

"If the leadership and rank-and-file members of unions don't show a desire to clean up, I know of no legislation or magic formula that will do it," said Mitchell.

The gathering was called to commemorate the late Louis Stark of The New York Times, a pioneer in the field of labor news gathering.

• • •

NLRB Says Jencks Case Does Not Open Its Files to Company in Labor Case

The National Labor Relations Board ruled last week that the Supreme Court decision in the Jencks case does not entitle a company accused of unfair labor practices to see confidential NLRB files.

In the Jencks case, the Supreme Court held that a defendant in a criminal case was entitled access to statements made by a government witness to the FBI, to see if the witness was telling the truth in court. Pres. Eisenhower signed a law modifying the court order.

The Great Atlantic & Pacific Tea Co. asked NLRB to reverse a trial examiner's ruling that it was not entitled to "all affidavits, reports, documents and any other material" which the board gathered as a result of investigating charges filed by the independent Bakery Workers.

The union charged that the company fired workers for union activity. The A&P demanded to see the NLRB files at a hearing on these charges. Specifically, the company requested copies of statements made to the board by union attorney Milton Stanzler, the first witness at the hearing, before cross-examining Stanzler.

A&P argued that NLRB regulations making such material confidential were overturned by the High Court's decision in the Jencks case. The company also argued for availability as "a matter of policy."

The NLRB's three-man majority said that the Jencks decision did not upset laws allowing government agencies to adopt rules for safeguarding documents. Furthermore, the board held, the Jencks decision "is confined to criminal cases" and not applicable to NLRB hearings on charges of unfair labor practices.

NLRB Chmn. Boyd Leedom and board members Abe Murdock and Stephen S. Bean were the majority.

In an eight-page dissent, Joseph Alton Jenkin's said A&P's request should have been honored. He argued that the Jencks case "should apply to any case where the government prosecutes a violation of the law."

• • •

"Stop-Hoffa" Coalition Likely As Teamsters Election Nears

A "stop-Hoffa" coalition of the three long-shot candidates for the presidency of the Teamsters union seems likely as the three jockeyed for the lead in the few remaining weeks before the union's convention, which opens Sept. 30 in Miami.

Teamsters Vice-Pres. James R. Hoffa is still favored to win. But his three opponents—Thomas J. Haggerty of Chicago, Thomas L. Hickey of New York, and Rep. John F. Shelley (D-Calif.)—**were heartened by the decision of the Western Conference of Teamsters' to make no recommendation for the presidency.**

Frank W. Brewster, president of the conference and a union vice-president, is an old opponent of Hoffa. The Western Conference—the largest center of possible anti-Hoffa power—voted to refer the question of endorsement back to the 11 Western states' joint councils.

At the moment, Haggerty, a former milk driver in Chicago, seems to have the edge over his anti-Hoffa rivals. The coalition, if and when it is formed, will campaign for a "clean-up" and have as its widest appeal, the wish of many Teamsters to stay in the AFL-CIO.

• • •

Telephone Workers' Dispute Brings Countrywide Strike Threat

The sudden threat of a nationwide telephone tie-up took the country by surprise at midweek. Pres. Joseph A. Beirne of the Communications Workers of America called a strike of telephone installers for Monday morning all over the country.

The walkout would directly involve only 54,000 installation and equipment workers. But Beirne says that a total of 200,000 telephone workers, including operators, will respect the installers' picket lines at exchanges in all major cities.



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Wall St. Talks . . .

. . . about the flood of switch suggestions . . . death of a rumor . . . zooming corporate issues.

Switch suggestions are flooding the Street. Some may be due to brokers' desires to boost sagging commissions, but most of them look legitimate. This week Standard & Poor's list 101 common stock candidates for switching, some because of price, some for "relatively unpromising prospects."

Another rumor bit the dust when Foster Wheeler Corp. denied it had made any offers for Penn-Texas Corp.'s huge holding of Fairbanks-Morse stock.

New corporate issues are zooming. On sale this week were $110-million Sperry Rand debentures, with stock warrants; $50-million Duke Power and $40-million Philadelphia Electric bonds; bond issues of $30-million each by the Kingdom of Belgium, Lehigh Portland Cement, Texas Eastern Transmission, and New Jersey Bell Telephone; $25-million West Coast Transmission convertible debentures.

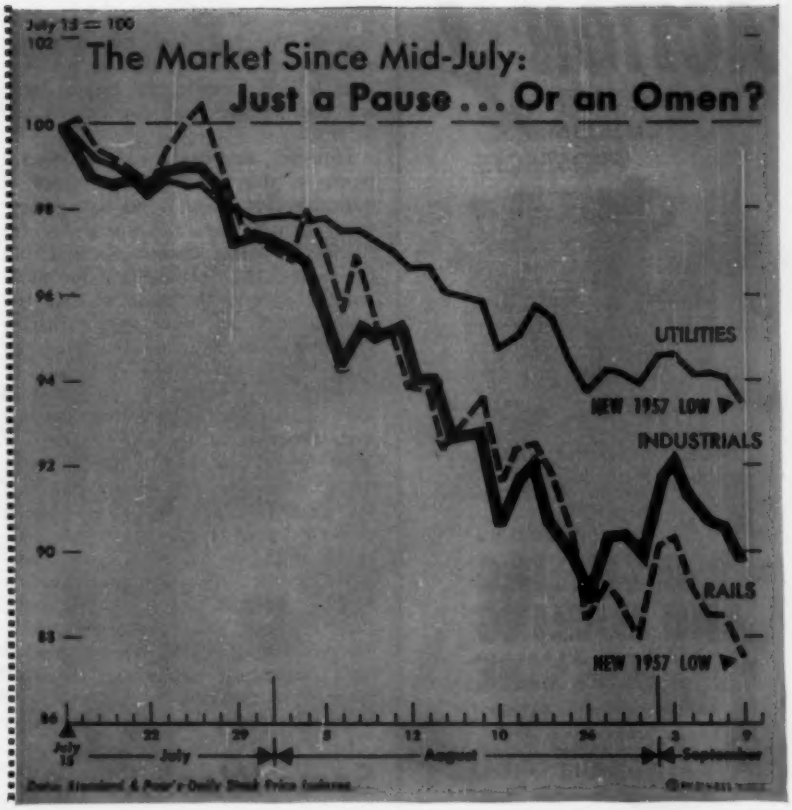
One bearish counsellor calls a spade a spade. His latest stock market survey is entitled "A Bear Market Is Murder."

Stock offerings to shareholders of companies listed on the Big Board hit $1-billion in first-half 1957, almost as much as in the whole of last year. The New York Stock Exchange says such offerings accounted for 67% of all first-half offerings of common stock, compared with a ratio of 48.6% all last year and 45.4% in 1955. The biggest individual sales were $231-million by International Business Machines, $199-million by Socony Mobil Oil, and $87-million by Anaconda.

What's in a name? asks a Wall Street wag. He notes that the esoteric-sounding Economics Laboratory, Inc., actually makes cleaning and water softening compounds, germicidal rinses, hair spray and pin curl lotions, and dairy equipment.

Selling mutual fund shares has turned out to be a profitable sideline for one Big Board house. Sales over the last year were $15-million.

The creeping rise of steel production is worrying some shrewd Streeters. The gain is nowhere near up to expectations.



Strength in the Decline

Despite sudden rallies, most Streeters are convinced that there is no end yet to the drop that began in mid-July.

Nothing is ever certain in the stock market, and Wednesday's sudden reversal from slump to a fairly steep climb was as fine an example of that uncertainty as you could wish.

But despite that sudden upsweep, most Streeters at midweek were still convinced that at least for the time being you could discard any hopes that the market's recent spate of rallies (BW–Sep.8'57,p181) could mean an end to the steep and worrisome decline that started back in mid-July.

There were plenty of reasons for that pessimistic conviction. After each of the rallies, the market has promptly sagged back into its downward pattern. That strongly confirms the shrewd observers who warned that the moments of price firmness were merely technical rallies, and that the bulk of traders and investors were still groping to evaluate the business prospects of the next few months—and finding them wanting in many respects.

• **Gains Wiped Out**—For confirmation, look at the chart above. It shows that by the end of Big Board trading on Tuesday all the gains recorded during the earlier rally in Standard & Poor's daily price indexes had been more than wiped out. And in the process:

• The rail index had been shoved back to its lowest level since December, 1954.

• The utility group was down to its lowest since October, 1955.

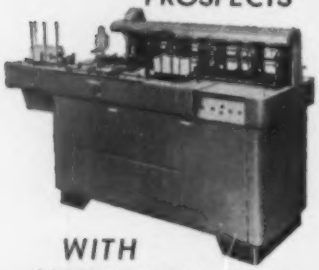
• The industrial index was back to the level of late March, and well within spitting distance of mid-February, 1957, which in turn was its lowest point since August, 1955.

Obviously, the bulls aren't happy over this absence of any real follow-through in the late-August, early-September firmness, along with the reappearance of the powerful earlier trend to decline. But the bulls have just as tough hides as their bearish confreres. So, just like the bears when the market is advancing, the bulls now are managing to find some "promising" aspects in a picture that to them is generally discouraging.

• **Moderate Volume**—Their main talking point is the sedate trading volume that was obtained all through the latest sinking spell—and most of the time since stocks started to sell off in mid-

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July. The strength of the argument lies in the fact that the moderate volume indicates that there is no mass urge to sell, despite the earlier drops and the prevalence of worries over the future.

However, the bears, too, can find a point in the small volume, since it indicates that there is no strong urge to come into the market and bid for stocks. And this disinclination to bid for shares, they claim, is a far more potent factor at the moment than the disinclination of most stock market participants to dump any of their holdings.

Arguing this point, of course, might seem almost like debating which came first, the hen or the egg. But most bears won't believe it. As a clincher in that debate, they merely point to the drastic declines that have been chalked up by more and more individual stocks in the weeks since mid-July despite the almost complete absence in that period, as the bulls aver, of any "real selling pressures." To prove it, they can offer a slew of most interesting exhibits, as the sampling below confirms.

• **The Evidence**—Big Board festivities early this week also offer further confirmation, if needed.

On Monday, only 223 of the 1,139 issues traded managed to close the day with gains, and 105 actually descended to new 1957 lows. Of the 1,147 changing hands on Tuesday, only 191 were able to advance, and 146 dove to brand-new lows for the year.

To many a bear the question as to whether the bull market that started in mid-1949 is still with us appears pretty much academic. On balance, however, that group might have trouble getting Streeters to agree entirely with its thesis that the historic upswing "officially" expired in early August 1956. The general feeling is that you can't be sure yet for various reasons.

Many dissenters admit, however, that they may be more amenable a little later on. They now look for a thorough testing not too far hence of its mid-February low by the industrial segment of the stock list.

If that testing results in a decisive break-through, as they think is quite possible, they, too, will probably be willing to admit that the greatest stock price boom the country has ever known breathed its last some 15 months back.

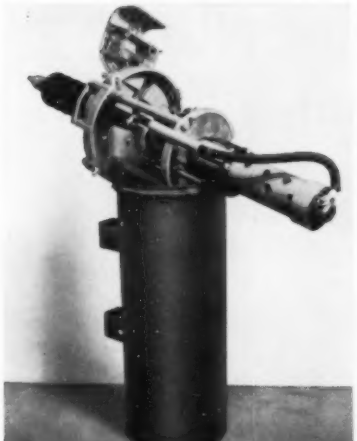
Some Weak Sisters

Common Stocks	*Recent Level vs. July High*	*Common Stocks*	*Recent Level vs. July High*
Johnson & Johnson	−12.4%	Texas Gulf Producing	−20.3%
Eastman Kodak	−13.9	National Lead	−20.3
Standard Oil (Ind.)	−14.2	Royal McBee	−20.3
Thompson Products	−15.0	Corning Glass	−20.5
Victor Chemical Works	−15.0	McKesson & Robbins	−20.6
B. F. Goodrich	−15.3	Evans Products	−20.7
W. R. Grace	−15.5	Food Mach. & Chem.	−20.8
Emerson Electric	−15.6	Celotex Corp.	−21.1
Sunbeam Corp.	−15.6	Reynolds Metals	−21.1
Marquette Cement	−15.7	Owens-Corning Fiberglas	−21.5
Abbott Laboratories	−15.9	Spencer Chemical	−21.5
International Paper	−16.0	Hooker Electrochemical	−21.8
W. Va. Pulp & Paper	−16.3	Joy Mfg.	−21.8
Pitney Bowes	−16.3	American Metal	−21.8
Amerada Petroleum	−16.3	Cutler Hammer	−22.7
Blaw-Knox	−16.4	American Viscose	−22.7
U. S. Rubber	−16.7	Schering Corp.	−22.8
Socony-Mobile	−16.8	United Air Lines	−23.1
Kennecott Copper	−16.9	Eastern Gas & Fuel	−23.5
Monsanto Chemical	−17.1	Kaiser Aluminum	−23.8
Tung-Sol Electric	−17.3	Anaconda Co.	−24.3
Dow Chemical	−17.9	Revlon, Inc.	−24.4
Int'l Business Machines	−18.1	Cooper-Bessemer	−24.4
Hercules Powder	−18.3	Outboard Marine	−24.5
Worthington Corp.	−18.6	Eastern Stainless Steel	−25.1
Riegel Paper	−18.6	Aluminium Ltd.	−25.4
Timken Roller Bearing	−18.9	Rayonier, Inc.	−25.6
Island Creek Coal	−18.9	Burroughs Corp.	−26.2
Continental Oil	−19.0	Carrier Corp.	−26.8
Great Northern Paper	−19.1	Lukens Steel	−27.3
Diamond Alkali	−19.2	Minneapolis-Honeywell	−28.2
So. Natural Gas	−19.3	American Potash	−29.6
Pennsalt Chemicals	−19.4	Universal-Cyclops Steel	−30.2
American Chain	−19.5	Industrial Rayon	−30.4
Sperry-Rand	−19.6	El Paso Natural Gas	−30.4
Clark Equipment	−19.7	Magma Copper	−31.4
Addressograph-Multigraph	−19.8	Penn-Dixie Cement	−31.9
Johns-Manville	−19.9	U. S. Borax & Chem.	−32.7
M. Lowenstein	−20.0	American Ship Building	−33.6
Aluminum Co.	−20.1	Trane Co.	−35.8



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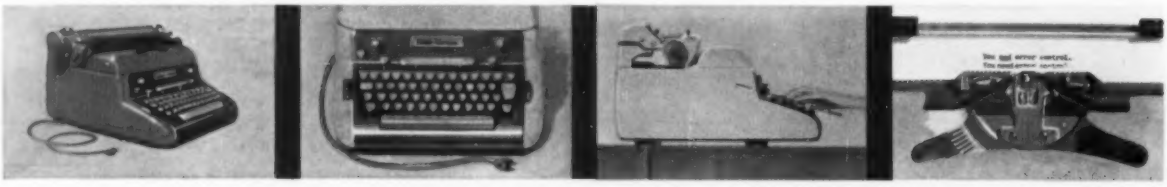


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BUSINESS WEEK
SEPT. 14, 1957



You're more likely to see a Rolls-Royce car occasionally in traffic in the next month or so; indeed, you may even get a call from a Rolls salesman.

For the first time in the U. S., the Rolls people are starting a serious drive to sell the car that for many years has been widely considered the best in the world, and the most expensive. The problem: to convince you that owning a Rolls is more than an idle luxury.

In the past few weeks, Rolls has added 26 new dealerships to the 10 that used to handle its U. S. selling. **The products they will handle are the company's "production" model, the $12,800 Silver Cloud,** and custom-built **Silver Wraith,** which ranges upward from $19,500.

The Silver Cloud will remain the "latest" model of slow-changing Rolls until 1960. **It's expected to account for 85% of the 400 U. S. sales that Rolls hopes to make this year.**

The Silver Cloud, like all Rolls, relies heavily on the major appeal that it seems to run just about forever, and with a minimum of noise. As for its specific points, **it has a comfortable cruising speed of 85 mph., but can top 100 mph.** Its six cylinder engine gets between 16 miles and 18 miles to the gallon. By tradition, Rolls Royce people will not cite horsepower.

The standard body for the Silver Cloud—that's what you get for $12,800—is a five-passenger, four-door sedan. For an extra $3,000, you can get a model with an electrically operated glass partition to wall off the chauffeur—with this you also get a slightly longer wheelbase.

For $4,000 to $5,000 above the base price, there's a two-door convertible Silver Cloud. Other special body styles can be had, for a price, on the same chassis.

Standard equipment for all styles includes automatic transmission (four speeds forward), power steering and brakes, radio, heater, a driver-manipulated "ride control" that adjusts the springs for rough roads or heavy loads, and a pedal under the dash that enables you to grease some 30 moving parts automatically.

All colors are optional, inside and out. **The interior and dash are finished in South African walnut,** the upholstery is top-grain cowhide. There are folding trays—for writing or refreshments—for front and rear seats.

For the busy executive, a tape recorder for dictation can be fitted inside the rear arm rest for an extra $300. **Other available extras include air conditioning ($1,200), rear-seat television (about $650), and a refreshment cabinet or small bar ($200 to $500).**

The Silver Wraith, the top Rolls model, offers for its $19,500-plus all the Silver Cloud features, plus custom-built, individually designed coachwork, a longer chassis, and a more powerful engine.

The Rolls people claim that **almost any competent garage mechanic can handle maintenance of their cars,** which carry a three-year guarantee. However, they're ready to fly factory-trained engineers to the scene to supervise repairs—at no cost to you. Rolls parts are now stocked at four depots in the U. S.

If all these Rolls features and costs leave you cold, **American manufacturers are nearly ready to offer their new lines for your choice. Here**

are the release dates for the 1958 models: All **General Motors** cars will go on sale between the last week in October and the second week in November; the **Ford and Lincoln** lines will be displayed in the first week of November, with **Mercury** following soon thereafter. All **Chrysler-made** cars appear the first part of November; **American Motors** will be out the last weekend in October.

—•—

Now's the time to order your tickets for the raft of new shows that will soon be opening on Broadway. Advance sales are already skyrocketing, with the season starting earlier than usual this year. Here's a quick run-down of the New York shows that are arousing the most anticipation:

West Side Story—a musical comedy about the life of teenagers on the streets of New York, score by Leonard Bernstein, opens Sept. 26 (Winter Garden Theater, 1634 Broadway); **Copper and Brass**—a musical starring Nancy Walker and Joan Blondell, Oct. 17 (Martin Beck, 302 W. 45); **Jamaica**—a musical with a Caribbean setting, starring Lena Horne and Ricardo Montalban, Oct. 31 (Imperial, 249 W. 45); **Captain's Paradise**—a musical adaptation of the Alec Guiness film, directed by Jose Ferrer, opens in January (Alvin, 250 W. 52).

Miss Lonelyhearts—a dramatization of the novel by Nathanael West, will star Pat O'Brien, opens Oct. 3 (Music Box, 239 W. 45); **Romanoff and Juliet**—the English comedy straight from a long run in London, starring Peter Ustinov opens Oct. 10 (Plymouth, 236 W. 45); **Nature's Way**—a comedy by Herman Wouk, starring Orson Bean and Audrey Christie, Oct. 16. (Coronet, 230 W. 49); **The Square Root of Wonderful**—Carson McCullers' dramatic comedy, directed by Jose Quintero and starring Anne Baxter, Oct. 31. (National, 208 W. 41); **Nude With Violin**—Noel Coward in his own comedy, around Nov. 12 (Belasco, 111 W. 44); **Look Homeward, Angel**—based on Thomas Wolfe's novel starring Anthony Perkins, opens late November (Barrymore, 243 W. 47); and **Time Remembered**—a romantic play by Jean Anouilh, starring Helen Hayes and Susan Strasberg opens Nov. 14 (Morosco, 217 W. 45).

• **If you want to see two top preview performances—before their official Broadway openings**—write to Stubbs Preview Club (246 W. 44) and ask about these shows, opening in December: **The Dark at the Top of the Stairs**—a domestic comedy-drama by William Inge (author of Picnic and Bus Stop), directed by Elia Kazan, starring Teresa Wright; and **Music Man**—a good-chance hit musical by Meredith Wilson, starring Robert Preston.

—•—

Fall planting time: For a different effect in tulips, have your gardener try some of the special Holland imports that grow tall (16-28 in.) and only slightly resemble the classic tulip shape. Here are a few:

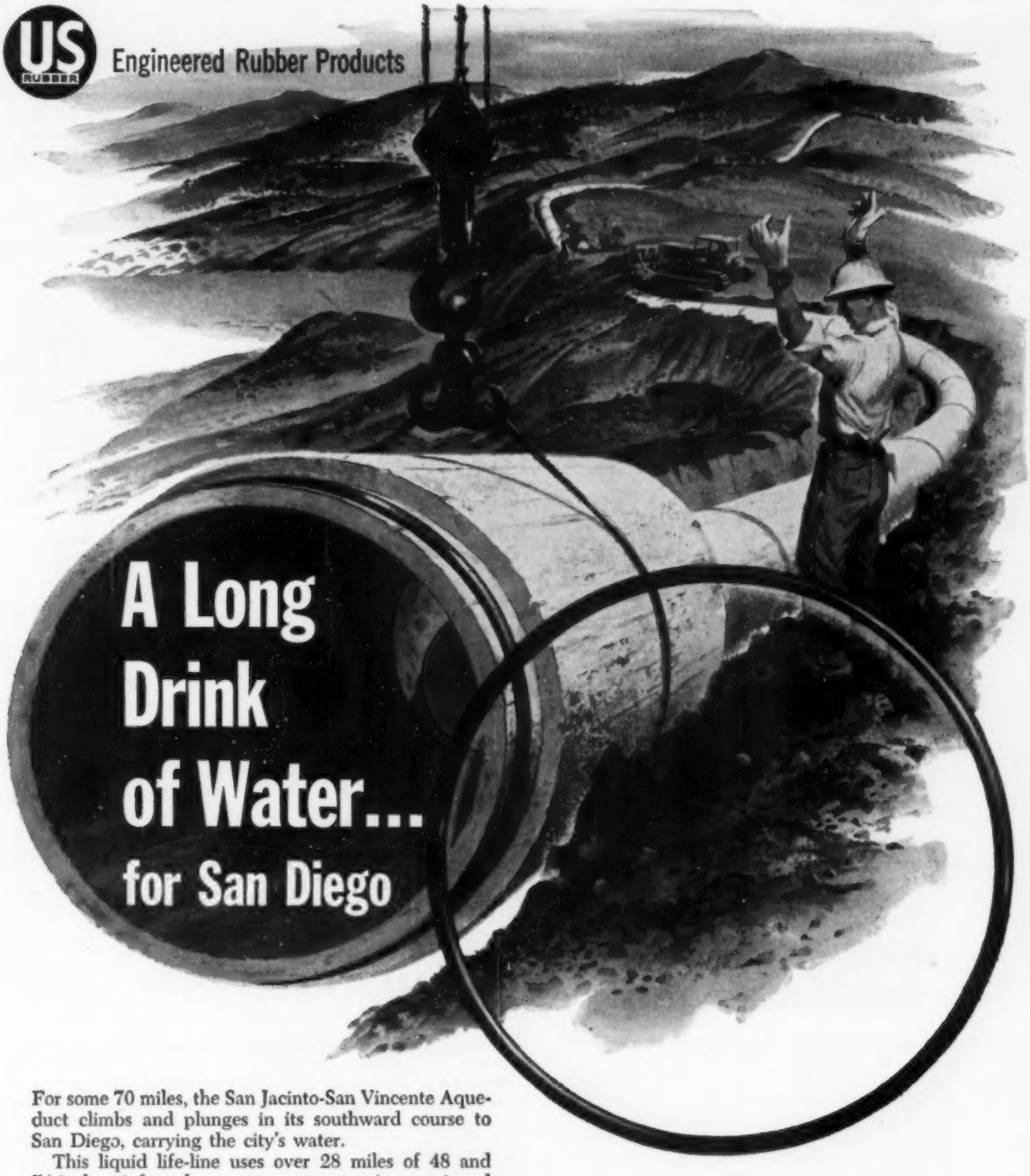
- **Peony-flowered**—The "Goya," "Dante," and "Orange Nassau."
- **Breeder**—"Oriental Gregii" (red and yellow) and "Cum Laude" (purple).
- **Lily-flowered**—"White Duchess," or "China Pink."
- **Fosteriana**—"Golden Emperor."

Prices range from around 15¢ to $3.00 per bulb; available from your local garden supply dealer, or write to The Associated Bulb Growers of Holland, 29 Broadway, New York, N. Y.

Next spring you might try planting the Climax marigold, a giant African hybrid just developed by the Burpee Seed Co. It will blossom into a 5-in. by 4-in. flower, in either yellow or orange, $1.00 per pack.

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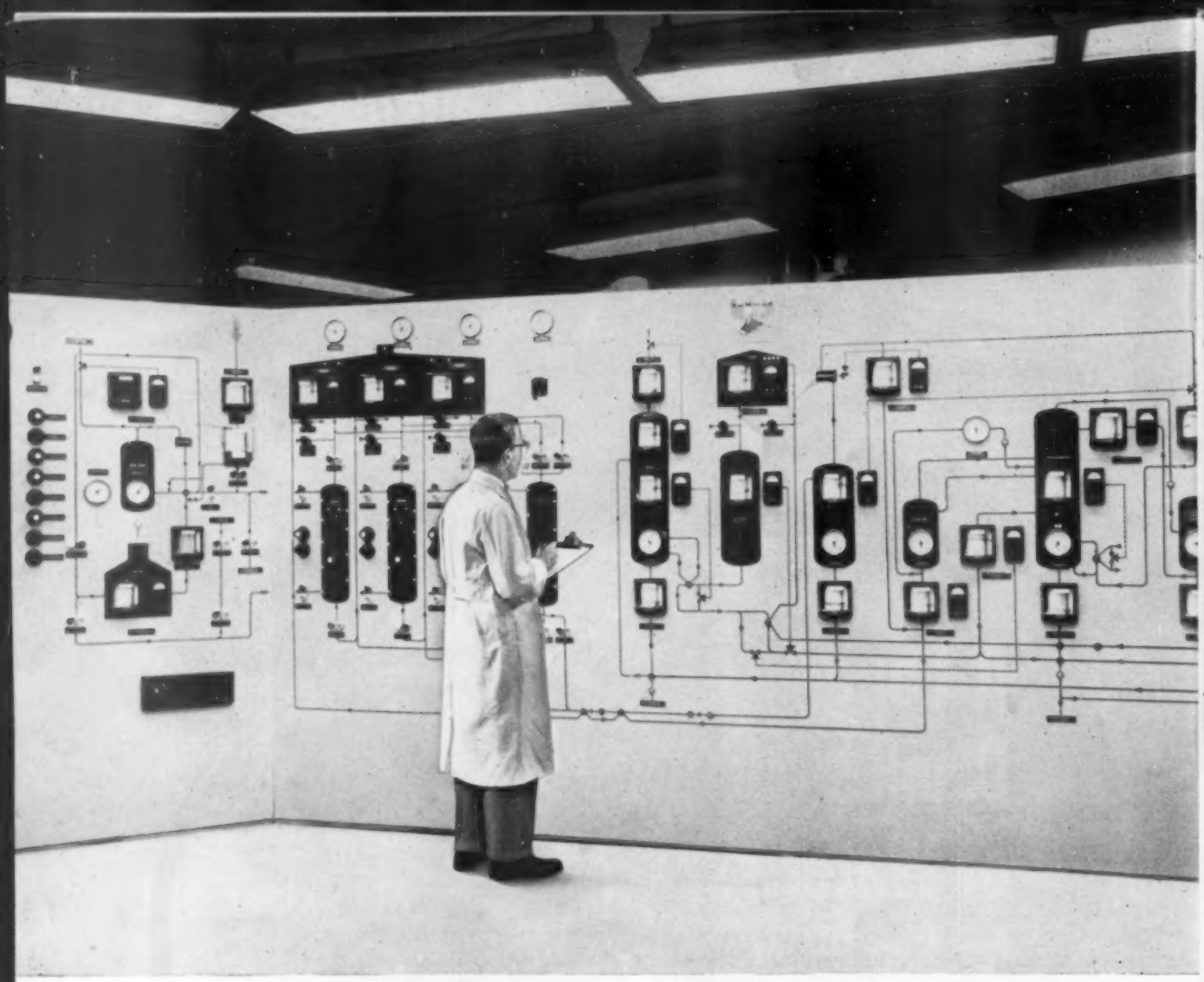
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MANAGEMENT

Skirting Company Town Pitfalls

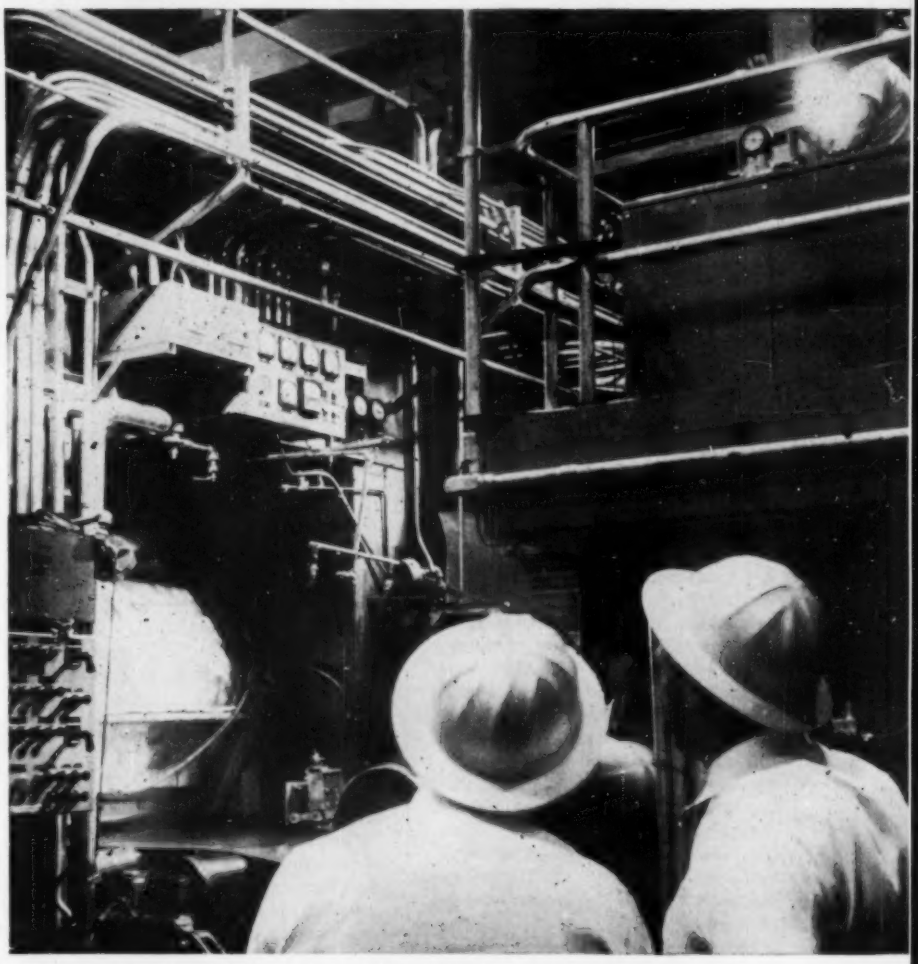
Kaiser Aluminum's firm policy at Ravenswood is to keep company's hands off town—but it had to stick in a finger or two.

UNLOVED and unlovely stepchild of the Industrial Revolution was the company town. It grew out of a need for housing employees near a remote place of work. Many of those towns were shabby—and many were hallmarks of a bygone era of domineering managements. Though even in these personal and civil rights were restored decades ago, the phrase "company town" still raises hackles at memories of "company police" and perpetual debt to the "company store."

Today big industry is once more moving, and probably will move increasingly over the next generation, into sparsely developed areas—for access to raw materials, power, and transportation. It's moving in, not with easily cowed immigrants of a century ago, but with highly skilled workers, technicians, and management that demand the amenities and freedoms they are used to.

That dumps a large-sized problem at industry's front door—one that Kaiser Aluminum & Chemical Corp., among others, has been wrestling with since 1954, when it first decided to build an aluminum plant on the banks of the Ohio River near Ravenswood, W. Va. (pictures), a "city" of 1,200 and one of the two largest in Jackson County (population total, slightly over 15,000).

The problem: How, short of building a new "company town" from the ground up, do you assure the adequate housing and facilities, and the com-



When a big plant like Kaiser Aluminum's complex new setup . . .

. . . comes to a town like Ravenswood, W. Va. . . .



. . . can the town grow without company help?



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COMPANY pilot around Ravenswood shoals is V.-P. & Gen. Mgr. D. A. Rhoades.



TOWN banker, R. Ritchie, helped Ravenswood meet Kaiser Aluminum halfway.

patible social climate, that will attract and hold skilled employees and also make "old town" and "new plant" happy neighbors?

• **Pointers**—Though the new Kaiser plant is seven miles by road from the center of Ravenswood, the only nearby "town," its coming obviously means quick growth for the area—up to an estimated 18,000 or more by 1960. Kaiser hasn't discovered any easy answer to the problems raised—many, in fact, still await solution—and has found itself involved beyond its original intention. Under any conditions, it may take a full generation to test the validity of the solutions arrived at.

But—though so far Kaiser has been both luckier in some ways and in others unluckier than might be the case in different circumstances—its approaches may provide some guideposts for other expansions into semi-rural areas.

• **Plan**—The new plant site was picked for three main reasons: (1) easy and inexpensive water haul for alumina from Baton Rouge—perhaps, someday, for bauxite from Jamaica; (2) abundant coal as a source of steam-electric power; and (3) access to 75% of the nation's market for aluminum within a 500-mile radius.

At the start, Kaiser anticipated few problems—and little need of company involvement in town building. Donald A. Rhoades, vice-president and general manager (picture), planned a gradual development paced to market demand. The start was to be a cold-rolling mill, with perhaps 200 employees. Other facilities were to be added at a deliberate pace, with growth to 5,000 employees at a date so distant as to be not worth considering. At that pace, local speculative builders could easily keep up with the housing demand, the town itself could take its community development in digestible bites.

• **Jolt**—But the plans got knocked into a tailspin.

The first mill was barely under construction when market analysis dictated the need for far more: expanded cold mill, hot mill, reduction plant—a $220-million complex, requiring some 5,000 workers, all to be finished within a five-year stretch at the outside.

Now thousands of houses were needed, with all their concomitants—stores, recreational facilities, streets, sewers. Kaiser Aluminum and Rhoades were adamant in opposing any company involvement, financial, administrative, or political, that could in any way be construed as "company domination." Even though, as one Kaiser official puts it, "It would have been a lot easier if we just built everything ourselves from the ground up."

• **Fact**—Sheet and foil started coming off the cold-mill line last January, and 60% of the plant complex is now complete. So far only some 850 actual Kaiser Aluminum employees are on the scene, but the schedule calls for over 3,000 full-time workers by spring.

In spite of its determined non-involvement, the company has already had to advance $1-million toward the town's future. Directly and indirectly, through company taxes and taxes on the property of its employees, Kaiser will within a short time be putting up the bulk of all monies for town and county development.

I. Beginning From Scratch

In many ways, Kaiser has been lucky in its site choice, at least so far. Local utilities have cooperated fully. Ohio Power Co., supplying the plant's power, is readying facilities to meet the upcoming community power require-

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Providing alloys is only part of ELECTROMET service. Continuing research and development in alloys and metals give designers the new metals they need to give *you* the products of tomorrow.

For more information about alloys, contact ELECTRO METALLURGICAL COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y.



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Floor machines from 13" to 23" brush sizes; vacuums from 3 to 55 gallons.

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You can do 10 different jobs with the American Floor-King—from scrubbing and waxing floors to shampooing rugs and grinding concrete! The American Vac-King also delivers outstanding performance, wet or dry pick-up for floors, rugs, off-floor cleaning. Write for buying facts and free demonstration.

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ment. United Fuel Gas Co. is rushing additional pipelines, storage facilities, service offices. The Chesapeake & Potomac Telephone Co. is multiplying its area facilities five times. The Post Office has promised home delivery.

Kaiser was even luckier in the cooperation it got from Ravenswood itself. For a century the town has existed solely as a distribution center for the county's 2,000 small farms. It has no industrial tradition. In some similar cases, small town residents have been known to try to make a good thing quickly out of new big developments.

• **Ravenswood's Choice**—Ravenswood, however, and particularly the brothers Ritchie—"Bood," the mayor, and Ray, banker, construction man, and leading citizen (picture, page 190), who together pretty much "ran" Ravenswood—foreswore the quick buck in favor of a slower, more solid, and probably in the end more profitable, development.

For one thing, the town gave up the doubtful value of a short-term construction boom. Trailer camps, shack towns, honky-tonks were rigidly excluded. Some 4,000 construction workers still building on the plant commute, from wherever they've been able to establish quarters, around a 50-mile radius.

For another thing, Ray Ritchie, who owned some 300 acres of the only desirable land left within city limits, not only turned thumbs down on land speculators, but cooperated fully in helping the company option other nearby suitable land at reasonable prices.

• **Crucial**—But other problems have multiplied. The most immediately crucial one—housing—has, until very recently, been almost completely stymied.

Bedrooms clearly have to be found, or created, in Ravenswood. The nearest urban areas of any size—Parkersburg, 40 miles away, Charleston, 50 miles, Huntington, 60 miles—are too distant for regular commuting.

The development came at a critical time, however. A hard-to-kill rumor swelled that Kaiser was building at Ravenswood only as a standby for a national emergency. Memories were still fresh of the recent housing fiasco at Waverly, Ohio, 70 miles away. When original employment expectations for the Atomic Energy Commission's big processing plant there proved to be too high, the AEC was left with 833 unsellable houses.

To the big lenders and the Federal Housing Administration, the fact that Ravenswood would be a one-industry town, subject to the economic fluctuations of one company, was a second strike against it. At one point, FHA categorically refused to underwrite mortgages there.

Because of the town's isolation, building labor and material costs were high. The few houses that were built ran to



Vacuum-forming with acetate starts a 3-point program rolling for Holley Carburetor and Dealers

Another first for Holley Carburetor—the first vacuum-formed package for automotive parts—a unique package that not only protects delicate Contact Set units, but also facilitates their merchandising, builds customer interest and confidence.

Celanese acetate plays an important role in the success of this 3-point packaging-merchandising operation:

1. Its unusual toughness protects the part from abusive handling, dependably seals out harmful dust, grease, and other contaminants.

2. And because Celanese acetate prints clearly, it makes possible the identification of each package with its part number. This makes inventory-taking easier, eliminates many stocking problems.

3. Acetate's sparkling transparency attracts the customer, stimulates his interest, and the completely visible Trademark on the part tells the customer that it's a genuine Holley—it builds customer confidence!



Fabricated by Holley Plastics Company, Van Dyke, Michigan, sole distributor of Holley-Mayflower Electronic Sealing Machines.

With all these advantages, it's no wonder dealers are so enthusiastic about this new package, and that Holley has slated vacuum-forming with acetate for its other Ignition Parts, Condensers, Rotors and Carburetor Parts. Have you considered all the advantages of Celanese acetate? Celanese Corporation of America, Plastics Division, Dept. 129-S, 744 Broad Street, Newark 2, N. J. Canadian affiliate: Canadian Chemical Co., Limited, Montreal, Toronto, Vancouver.

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"I'm tempted... to get a postage meter!"

Mr. Smith is the backbone of our country, a small businessman. He has a small office, and keeps a small stock of stamps in a small stamp box. Today, with his secretary ill and invoices to go out, he ran out of stamps. So Mr. S. had to pedal to the postoffice, buy stamps, and affix same... Utterly unnecessary! No office is too small to have a postage meter—now that PB provides a low-cost desk model.

A postage meter frees you forever from stamp-sticking, stamps that stick together, and riding herd on the old-fashioned stamp box. The little DM model, for instance, prints postage as you need it, for any kind of mail. *And it even has a moistener for sealing envelopes!*

You dial the amount of postage wanted, insert envelope, press the lever—and the stamp is printed right on the envelope! With a dated postmark that helps get your mail through the post-office faster; with your own small ad, if you like. The DM provides postage for parcel post on special tape.

The meter is set by the postoffice for as much postage as you need to buy at a time. Your postage in the meter is always protected from loss or misuse, and is accounted for automatically, on visible registers.

There is an easy-to-use model, hand or electric, for every office, large or small. When you think of the savings, and the convenience aren't *you* tempted to get a postage meter?

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the $25,000 range. Without FHA insurance, they commanded down payments too steep even for some executives—and as for Kaiser workers, the average income there will shade a trifle under $400 a month.

One Ohio developer did come in, did build 56 garden-type apartments (subject to Kaiser's guaranteeing the rents for five years) and five sale houses, before he gave up.

• **Poor Bait**—All this added to the recruitment problem.

This excerpt from an engineer's letter was fairly typical: "We priced several homes to compare the standard of living my wage bracket would put our family in. . . . This would be lower than our present standard. Due to the uncertainty of schools and hospitals and inadequate community services, we do not feel it is fair to our children to make a move of this kind."

• **Matter of Necessity**—Some things, it's true, were moving. Local police and fire departments were adding men and equipment, renovation started on a local hotel, and the Town Council pushed a sewage treatment works.

But in other respects Kaiser has had to move more directly than it had either anticipated or desired. Schools, for instance.

Schools in West Virginia are a county problem. Even before Kaiser's appearance, a county survey indicated an almost immediate need of $7-million in new construction. It was soon obvious that the county couldn't move fast enough. If Kaiser wanted workers, it had to make some school facilities available. So the aluminum company built one—a $500,000, 20-classroom elementary school, which is receiving its first pupils this month, and which Kaiser leased to the county for $1 a year.

Nevertheless, county voters last spring turned down a proposed $1-million school bond issue. Proponents hope to pass it this fall—but even if it succeeds, schools will still be a long-range problem for the company, particularly high schools.

II. Fresh Start on Housing

But the whole immediate key to how fast the town grows—and, in fact, how soon and effectively the plant operates—still hinges on housing.

Construction so far has been stopgap, perhaps 100 dwellings put up by local contractors through local financing, generally at conventional terms. This has been helpful for the first supervisory personnel—but at least 4,000 to 5,000 more dwellings are needed, and soon. Kaiser personnel are already scattered around, commuting daily from a 40-mile radius.

A number of big developers and prefabbers were approached. The invari-



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able reaction was that bulk housing could only be undertaken if Kaiser would underwrite it, to a minimum tune of $15-million. This would mean company involvement with a vengeance, and the company would have none of it. But time is running out. Insufficient housing can cripple the big plant.

• **On the Way**—Now a new approach has been found. A new construction firm has been pieced together—headed by Richard Graves, former president of the League of California Cities; Everett F. Gidley, New York mortgage broker; and Sanford Weiss, a Los Angeles builder. Known as the Ravenswood Home Co. it got started in June. The new outfit found its clue in Section 213 of the FHA code, which permits management-type cooperative housing, with down payments as low as 2%, and with payments stretched over 40 years.

Current indications are that FHA will approve, and that financing is available, probably through Occidental Life Insurance Co. of California—closely tied to the Bank of America, of which the Kaiser empire generally is an important customer.

The new group hopes now to have up to 400 dwellings, initially in the form of garden apartments, finished by next spring, priced to the budgets of $375-a-month salaried workers.

III. Company and Community

But housing is just a first step; the growth of Ravenswood as an integrated community also had to be considered. In the summer of 1956, Kaiser Aluminum, with the express approval of the Ravenswood Council, laid the problem before Harold F. Wise & Associates, city planning consultants. The firm is also working on redevelopment plans for Austin, Tex., and Tulsa, Okla.

Kaiser put up the $70,000 fee, but made it clear that the company would in no way try to influence, push, or implement the recommendations.

• **First Steps**—After a preliminary reconnaissance, Wise advised the council to arm itself with zoning authority, and to appoint a planning group. Ravenswood's first planning commission took office last November—five local people and one Kaiser official—and its first zoning ordinance went into operation in January.

Although comparatively underdeveloped, the area has little suitable land for growth. Wise did find two plateaus to the south, close enough for eventual annexation, and big enough to accommodate the population he foresaw in a modern layout. Kaiser obtained options on the 30-odd parcels, putting up some $600,000, presumably to be reimbursed when the land is developed.

• **Plan**—In May the master plan was unfolded to the council. On the Kaiser-



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Tinnerman Products, Inc., Cleveland, Ohio, produces more than 10,000 different shapes and sizes of "SPEED NUT" brand fasteners for industry . . . many of them to special specifications.

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Here is a fine example of how a small investment in Yoder slitting equipment greatly simplifies and speeds production while effecting important operating economies.

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optioned plateaus, Wise envisioned comfortable residential areas with curving streets, handsome homes, minimum commercial facilities.

In the existing town it recommended an orderly development—including a new retail shopping center with two small department stores—Ravenswood's first—and a large supermarket, also a local innovation. Nearby, but not too near, there would be a commercial service center for businessmen—room for farm suppliers, lumber and building materials yards, contractors offices, warehouses, and the like. A new central high school for 1,200 to 1,500 children is set down as a "must."

And for community facilities: a central park and recreation area, including an all-year boat harbor, a community center based around an auditorium for dances and other large gatherings, and a "green belt" of open space all around the town, "assuring every family access to the countryside."

• **Money**—This master plan was adopted in July by the Town Council. Right now the townspeople seem determined to carry it through. Paying for it is still in the lap of the gods.

The general assumption is that if the estimated 18,000 residents (the families of 5,000 Kaiser employees and some 3,700 expected service workers, plus the current inhabitants) do their shopping in Ravenswood, private capital will have the necessary incentive to build all the private facilities.

In some things, particularly in recreation, Kaiser can help indirectly through an employee recreation program—picnic areas, clubhouse facilities that could include a skating rink and a civic meeting place, trap-shooting and fishing areas within the 3,000-odd acres it owns outright.

But the company is leaning over backwards to avoid any appearance of influencing the commercial life of the town. Once the market exists, Kaiser is quite sure suppliers will arrive—and it has no intention of either inducing any particular service or retail companies to come, or attempting to screen any who wish to come.

For the public buildings and areas, the council expects to proceed gradually, so that the community's growth will furnish the wherewithal to pay the bills.

• **Prospect**—The difficulties aren't gone by a long shot—but now Ravenswood sees itself becoming a modern, well-planned city based around an industrial complex pouring a $20-million annual payroll into it. It sees a private investment roughly estimated at $80-million—against the city's present assessed value of $8.5-million. And Kaiser officials see finally the opportunity to get back to their primary job of rolling aluminum. END



These 2 letters raise a box car's revenue from $4,000 to $12,000 a year!

DF* on a box car means more revenue for the railroad . . . and more shipper-satisfaction because of the car's built-in lading protection.

Cars equipped with the DF Loader are always working. Shippers know these cars eliminate costly dunnage, reduce loading and unloading time, and permit full capacity loads.

DF cars multiply by three the revenue of ordinary box cars. DF cars build good will among shippers by virtually eliminating damage in transit. That's why 45 major railroads have DF-equipped cars among their rolling stock and why many roads are increasing their DF fleets yearly.

For full details on DF equipment . . . and what these two letters on a box car can mean to shipper and carrier . . . write Evans Products Company, Dept. **B-9,** Plymouth, Michigan.

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EVANS PRODUCTS COMPANY **is a member of the Packaging Institute. 19th Annual Forum, October 28-30, New York City.**

In Management

• • •

Soap Maker's Aid to Education Climbs to Near $1-Million Level

Last week Procter & Gamble Co. upped its aid to education program close to the $1-million-a-year mark. At the same time, it suggested a policy likely to lock educators as well as other corporate givers in heated debate.

In addition to already established gifts of $590,000 for various scholarships, fellowships, and special grants, the big soap maker announced it will give $310,000 a year in direct unrestricted grants to colleges. **The bulk of this aid will go to 10 big "national" universities, including Harvard, Cornell, Columbia, Stanford, and Chicago.**

The chosen few will get $20,000 annually apiece. Since these big institutions are noted for the excellence of their scholarships and for developing the nation's best teachers and research minds, P&G says, it is only natural that large national organizations make a special effort to assist them.

The bulk of corporate aid to traditionally small—and currently beleaguered—state or regional schools already comes from local or regional businesses, which have little interest in the big schools, says P&G company president Neil McElroy. **However, to help the small fry, too, the company is allocating $110,000 to various college associations representing 465 schools—an average of $237 per school.**

• • •

Murray Vernon Buys Control Of Ruppert Brewery

Questions on the future ownership of Jacob Ruppert Brewery (Knickerbocker beer) seemed firmly settled last week. **Board Chmn. Murray Vernon announced acquisition of a controlling interest in the company.** He claims control of 257,000 of the 500,000 shares of common stock outstanding, following private purchase of a block of 84,000 shares. **He plans to keep the brewery in the Vernon family.** Vernon is a son-in-law of the late George Ruppert and manager of Ruppert's estate, which includes 126,000 common shares. Vernon hopes that his sons will carry on the business.

Vernon's acquisition of control followed the termination of talks with Anheuser-Busch, Inc., St. Louis, for purchase of Ruppert's.

• • •

Motor Products Corp. Is Trying To Buy Its Way Into the Black

Motor Products Corp., one-time Detroit auto parts and trim producer, may soon be writing its books in black ink instead of the red it's been using for the past few years. **Last week the company bought about 12% of the stock of Holland Furnace Co., a profitable furnace and air-conditioning manufacturer with annual sales of about $31-million. It is also dickering for several other concerns.**

A little over a year ago, Motor Products sold its Deep Freeze Appliance Div. Last fall it closed down its auto parts business. And at the end of this year, upon completion of contracts, the company's aircraft parts business will go on the block.

These transactions generated cash for the company to shop around for more profitable ventures. **Motor Products has about $11-million in its pockets now. It also has racked up more than $4-million in losses since 1954, which gives the company an attractive tax-loss umbrella.**

Motor Products made the headlines in 1955, when it was forced to lay off several thousand veteran workers after it failed to renew anticipated auto parts contracts—principally with Ford and Chrysler. Both union and management journeyed to Washington in a direct appeal for Defense Dept. contracts, but the maneuver was unsuccessful.

Later, General Tire & Rubber Co. tried to take over the sick supplier, but couldn't acquire enough stock for control—partly because of a stock plan initiated by the company and the union for employees.

In February, 1956, an investment group headed by Arnold H. Maremont, Chicago industrialist, acquired the company.

• • •

Henry Roemer Steps Aside For Son at Sharon Steel

The Sharon Steel Corp. has a new board chairman, James A. Roemer, 51 (picture), and a new president, Alfred M. Tredwell, 50. The moves follow the announcement by Henry A. Roemer, who has held the company's management reins since 1930, that he was stepping aside in favor of the younger men. The elder Roemer, who joined Sharon when it was still the Sharon Steel Hoop Co. and boosted sales from $10-million to $200-million, will remain chairman of the company's executive committee and a director.



His son James, an Oberlin College graduate, who has been with Sharon for more than 25 years and a vice-president since 1953, also stepped into additional responsibilities as president of the new Mallory-Sharon Metals Corp. (BW—Sep.7 '57,p36). This concern, a joint enterprise of P. R. Mallory & Co., Sharon Steel Corp., and National Distillers & Chemical Corp., will be the largest integrated company in the field of special "nuclear age" metals such as titanium, zirconium, hafnium, and columbium.

Tredwell has been Sharon's vice-president in charge of operations since 1950.

How to stretch sales manpower

TODAY, every second sales executive seems to have recruiting problems: "We can't cover customers, let alone prospects"... "Our men don't work long enough or hard enough"... "They scorn sales training, skim the surface of product knowledge."

If those complaints sound familiar, may we make a suggestion? Before you start a high-pressure recruiting drive, use a C-M incentive campaign to uncover all the hidden energy and ability within your current sales staff.



C-M plans put human nature to work for you!

A commission check brings no honor or recognition, but a salesman can accept congratulations on a C-M prize without violating good taste. He can study "prize winning tips" without feeling like a sales trainee. When he's fighting to bring home a new refrigerator or two tickets to Bermuda, he can keep a five-thirty appointment without incurring his family's wrath.

Whether he's a star or average salesman, he can set himself a reachable goal... win a tangible symbol of achievement... then continue selling from a new plateau of self-confidence.

These C-M clients got more sales from the same sales force

"The salesmen and their employers were surprised that our products could be sold during the Summer. Enthusiastic men opened new retail outlets... found sales arguments heretofore unfindable. Instead of our Fall demand being reduced, it is being increased. The cost of this program was a small portion of the extra profits secured."

"Appliance sales have increased approximately 80% in the area tested."

"Sales skyrocketed to an unprecedented 50% above normal."

"It did create a 20% increase in sales, but the information gathered is almost worth the cost of the campaign. One broker, who had complained that he could not sell our product because we were not doing enough consumer advertising, showed over a 500% increase in sales.

Air travel and merchandise prizes are self-liquidating

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Experienced C-M executives will submit a tested plan that is tailored to your objectives, prepare all mailing pieces and sales promotion material, handle all campaign details, and supply prizes to suit your budget and your winners' tastes.

As prizes are earned, you are billed for merchandise at wholesale prices, travel at carrier rates.

You have profits to gain and virtually nothing to lose when you try this modern method of stretching sales manpower. So why not phone or write the nearest C-M man now? You'll never know how good your factory, wholesale and retail salespeople can be until you put them to the test of a professionally handled C-M incentive campaign.

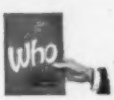
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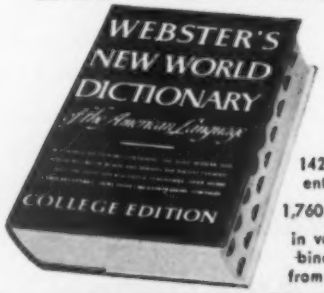


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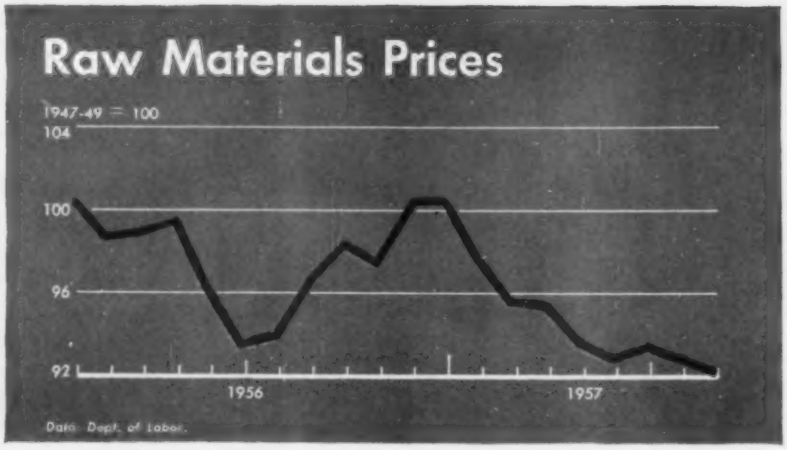
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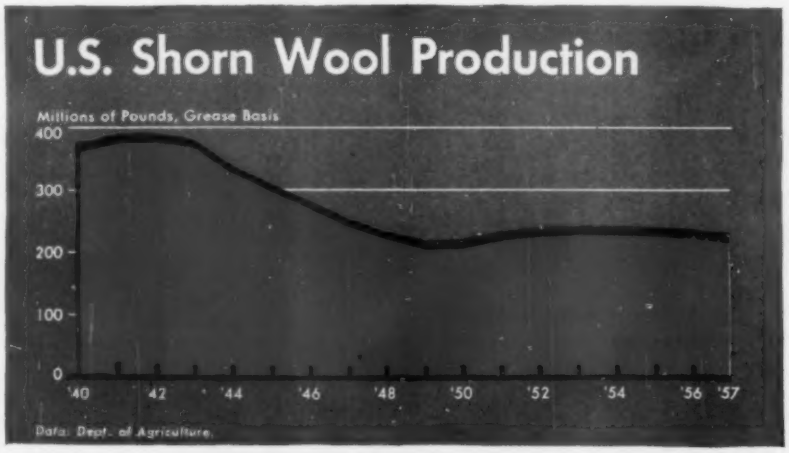
CHARTS OF THE WEEK



Nearing a New Level?

Industrial raw materials prices–as measured by the Dept. of Labor's daily index of some of the more sensitive items in that category–are continuing to move downward. Therefore, this may foreshadow a leveling-out in the wholesale price index, on which the daily index is designed to call the turns.

Prices of industrial raw materials in August averaged about 5% below their level of a year ago. The index has been declining almost steadily since January –and at the same time the wholesale price index for industrial commodities has advanced only fractionally. The over-all wholesale price index has risen somewhat more, but primarily because of an increase in the prices of farm and food products.



The Decline Continues

U.S. shorn wool production, which accounts for about 80% of the wool produced in this country, will drop 3% this year to 226-million lb., the Agriculture Dept. estimates. This is the lowest level since 1950.

At the same time, world production continues to rise. It was up 5% in the 1956-57 year, and a slight rise is likely for 1957-58 as well. Last year over-all world production was 41% higher (clean basis) than pre-World War II. But U.S. production was 36% below prewar, compared with a gain of 50% for the rest of the world.

The decline in the number of sheep

DOW CORNING

SILICONE NEWS

Task Force: Silicones

- Help deliver the Hustler's punch
- Protect vital communications
- Keep the DEW line lighted

DEPENDABLE ALLIES *in the constant battle to preserve peace are silicones—the same Dow Corning Silicones that help production men mop up trouble spots . . . that help designers engineer better consumer products. While the detailed story of how silicones aid our defense program is under security wraps, some information about the vital role silicones play in strengthening our defense arm can now be revealed.*



STRIKING STRENGTH — The Convair B58 Hustler, spectacular new addition to our air arm, delivers an extremely accurate and lethal "punch". One of the reasons for its superior fire power efficiency is Silastic,* the Dow Corning silicone rubber.

The B58's electronic fire control centers need protection against jolting and electrical leakage. Silastic provides for that need. Silastic cushions and insulates the fire control "brains" against the roughest flight, despite the sub-zero temperatures encountered aloft. Silastic also remains resilient when subjected — as often occurs in this equipment — to temperatures of 350F. Designed and produced for the Convair B58 by Emerson Electric Manufacturing, these electronic packages, cushioned in Silastic, assure the Hustler's ability to deliver.

On the civilian front, products ranging from "fry pans" to electric motors —from portable TV's to automobile transmissions — have been improved with Silastic, the silicone rubber that retains superior electrical and physical properties from —130 to over 500 F.

NEW SWITCH—Communications are vital in military operation. Stromberg-Carlson solved a major problem of reliability in field-type telephone switches by adopting coil spacers and insulators of silicone resin-bonded glass laminate. While the spacers and insulators formerly used would melt under unusual stress, the silicone-glass parts are unaffected even if trouble on the circuit should force temperatures to 680 F! Here again, as in hundreds of industrial and consumer products, Dow Corning Silicones have helped solve a major dependability problem.

READY RADAR — Strung above the Arctic Circle is a line of Distant Early Warning radar stations. In that remote, deep-freeze area, dependable and maintenance-free power is essential. That's why Western Electric Company, prime contractor for DEW Line installations, specified silicone insulated dry-type transformers to supply station power and lighting requirements.

When insulated with Dow Corning Silicones, dry-type transformers offer exceptionally light weight, maximum reliability, and are unaffected by arctic cold even when idle. In industrial installations, this type of silicone insulated transformer offers exceptionally safe and reliable performance and permits location close to the load.



FOR MORE INFORMATION **on any of these silicone products or applications, write Dept. 2221.**

first in silicones

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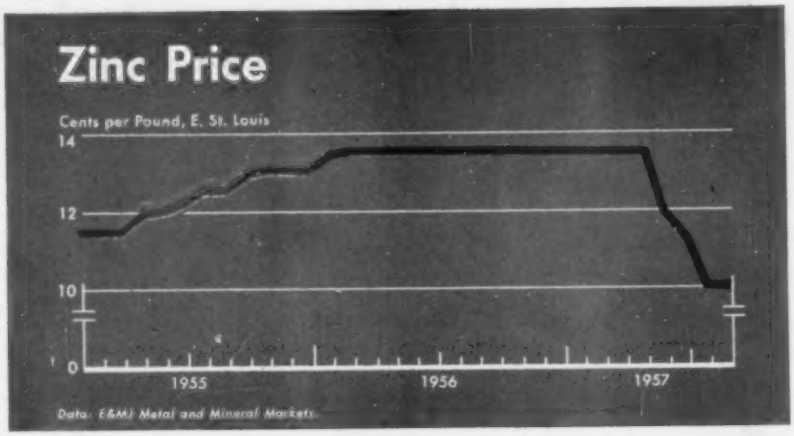
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on farms and the resulting decline in U.S. wool production continues despite the government's efforts to encourage sufficient production to meet our domestic needs through incentive payments.

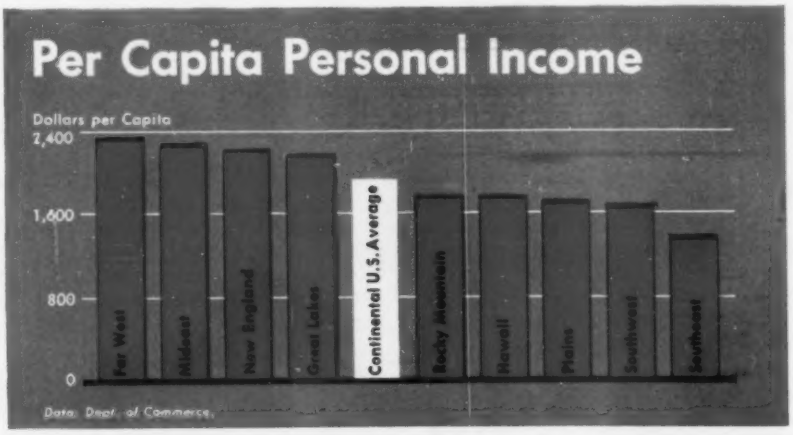


Big Plunge to Three-Year Low

Zinc prices in recent months have plunged to the lowest level since early 1954 as a result of poor consumer and government demand. Lagging demand has pushed inventories up. At the end of July, producers' stocks had risen to 146,153 tons, compared with 133,455 tons in June and 102,775 tons a year earlier. At the end of 1956, inventories were 68,622 tons, somewhat less than one half of the level for July 31.

Demand picked up a bit in August, however. And the industry is hoping that tooling for 1958 autos will mean continued good sales.

Chances of government assistance for the industry in the form of a tariff were dashed—for this year at least—as Congress adjourned without reaching agreement on a bill.



Far West Is the Flushest

U.S. personal income per capita last year was $1,940—up 5% from 1955's average of $1,846, according to the Dept. of Commerce. The Far West—dominated by California—had per capita income about one fifth above the national average and the highest for any area. The Mideast, New England, and the Great Lakes states also topped the average. The Southeast, Southwest, Plains, and Rocky Mountain regions fell below it.

By states, incomes ranged from $964 in Mississippi to $2,858 in Delaware. Connecticut ranked second to Delaware. The only state to show a decline on this basis was Nevada. Although it still ranks fifth, per-capita income there dropped to $2,413 in 1956 from $2,451 the year before.

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What the Stock Market Is Saying

The stock market has a spotty record as an economic forecaster. Sometimes it has been a good guide to business conditions, and sometimes it has been spectacularly wrong. So those who try to guess the future course of economic activity from the movement of stock prices might do just as well with a crystal ball.

But there are few better thermometers of current business sentiment than stock price movements, provided you know how to read them.

Take the decline in stocks over the past six weeks. Some people have jumped to the conclusion that this drop will be followed by a similar decline in business activity. If the stock market were an accurate barometer, such might be the case, but looked at as a thermometer, the picture is somewhat different.

The thermometer reading indicates that the optimistic fever that was infecting investors only a few months back is now subsiding. But it is not a case of catching a deflationary chill. So far, there has been no panicky selling wave, but rather a definite slackening in demand, which earlier had boosted prices to heady levels. Tight money, cuts in government spending, and uncertainty about fall business have all contributed to a change in investor sentiment.

This change makes clear that investors are no longer betting that a business upsurge is in the making. This does not mean, however, that the market is sure that a decline will follow. The drop so far has brought the market back to the levels reached earlier in the year, before the predictions of an upturn became widespread. In making the downward adjustment, investors are returning to their previous attitude of marking time, reflecting the kind of readjustment that is taking place in the economy.

This cooling off is salutary. For if investors had continued to look at business activity through rose colored glasses and the economy failed to live up to their optimistic expectations, we would undoubtedly experience a much sharper and severer drop. By getting rid of the fever now, and substituting a more sober—and realistic—view, the chances of a severe jolt have been lessened.

Helping India

The government of India apparently intends to request special financial assistance from the U. S., perhaps $500-million above and beyond the $50-million a year in economic aid it now gets. The extra money, which would be in the form of a loan, is needed to help cover the dangerous deficit in payments that has developed during the early stages of India's second Five Year Plan (page 166).

We have no doubt that the Administration will give sympathetic consideration to the Indian request. Somehow it should be possible to increase our assistance to India, despite the way Congress has cut into the Administration's lending authority.

We wish we could feel as confident that the Nehru government finally is ready to take a sympathetic attitude toward the investment of private American capital in India. In both the short and the long run, the Indian economy would benefit greatly from a larger flow of investment capital and of the Western knowhow that normally goes with it. Private American capital could usefully supplement public assistance at the present time and then reduce the need for it almost entirely.

The case for private investment abroad has just been put most persuasively in an article written for Foreign Affairs by Emilio G. Collado and Jack F. Bennett, both of the Standard Oil Co. (N. J.). Collado and Bennett don't deny the need for continued public assistance in many areas of the world but what they stress is the job private U. S. capital can do—when given a chance—to promote economic development. They also make an optimistic forecast of the future role of private capital. If there is the improvement that can reasonably be expected abroad in "the receptivity to investment," say Collado and Bennett, "we will witness a veritable explosion of interest in foreign investment."

We trust that this article in Foreign Affairs and the philosophy that it expresses are receiving the attention they deserve in India. If they are, then it may be possible for this new nation to make the most not only of public assistance but of private investment as well.

The Arkansas Tragedy

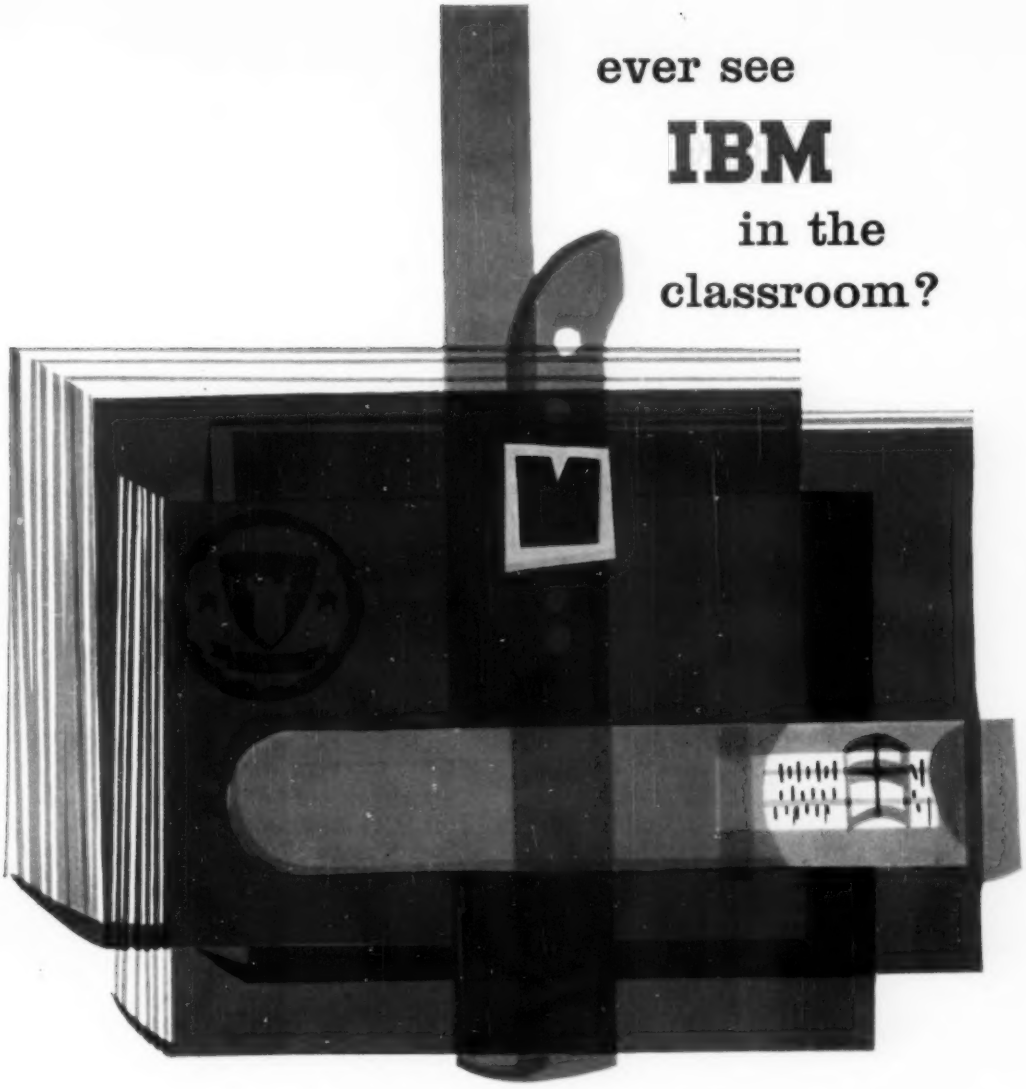
The tragedy of calling out the troops in Little Rock last week will have repercussions that will last a long while.

Gov. Orval Faubus' action will not long delay the progress toward integrated schools in this country. That movement is too massive, has been building up momentum too long, to be set back very much by the actions of any one state official.

Where the governor's action will hurt is in other nations' opinions of us. Not since the days of the lynchings has the U. S. presented so sorry a picture of itself to the world as it did last week when young men in the uniform of the U. S. prevented a handful of Negro children from entering school.

Here the damage is already done: Communist propaganda agencies now have a portrait of the U. S. that they can use against us in the Middle East, in Java, in India, and many other places. The tragic thing is that they can use this damaging impression for years to come.

ever see IBM in the classroom?



You won't sense it as you watch a freckled-faced six-year-old march off to his first day at school, but IBM machines play an exciting role in his education—from kindergarten through college.

In classroom, laboratory, and business office, IBM systems help the nation's schools keep pace with the increasing demands of today's world. They schedule classes, mark exams, report grades. They reduce registration problems, make teachers' chores easier. Used to speed research, they broaden the vision of tomorrow's executives and scientists. Most important of all . . . they give teachers more time for teaching.

Yes, every day, in uncounted ways, IBM quietly adds to the progress of community life, the pleasure of daily living, the effectiveness of education, industry and government.

HOW IBM HELPS EDUCATIONAL PROGRESS

Of the record 3,200,000 students attending the nation's colleges and universities this Fall, 1,200,000 were registered by IBM systems, in a fraction of the time it would have taken with other methods.

9,636 students and teachers—174 courses—all administered and controlled by IBM systems. That's the remarkable record of the Whittier Union High School District, Whittier, California, which has used IBM systems for the past four years.

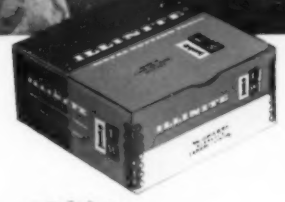
At M.I.T., an IBM 704 electronic computer has been speeding basic research in aerodynamics, meteorology, solid state physics and atomic energy.

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